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AMERICAN DYESTUFF REPORTER

DEVOTED TO TEXTILE CHEMISTRY • BLEACHING • DYEING • PRINTING • FINISHING

Annual Processing Review Number

Sequestrene*...

MINIMIZES PROBLEMS OF UNIFORMITY IN DYEING

One of the prevalent reasons for the inconsistency of performance of a dyeing formula is the presence of soluble metallic salts in the water or the goods.

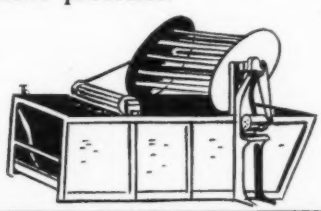
By deactivating those metallic salts a very important variable is eliminated permitting more consistent performance of the dyestuffs.

Sequestrene NA4 deactivates those metallic salts efficiently and economically—¼ of 1% or less of Sequestrene NA4 on the dry weight of goods generally is sufficient. Use Sequestrene NA4 when dissolving the dyestuffs. Raise the temperature as high and for as long as you need—Sequestrene NA4 will still perform.

You won't want to be without Sequestrene NA4 once you try it.

Write for booklet *Sequestrene for Improved Textile Wet Processing* giving the chemical properties of Sequestrene and describing its application to many important textile processes.

* *Reg. U. S. Pat. Off.*



Geigy

GEIGY COMPANY, Inc.

Dyestuff Makers Since 1859 **89-91 BARCLAY STREET, NEW YORK 8, NEW YORK**

BRANCH OFFICES: Boston • Charlotte, N. C. • Chicago • Los Angeles • Philadelphia
Portland, Ore. • Providence • Toronto
IN GREAT BRITAIN: The Geigy Co., Ltd., National Buildings, Parsonage, Manchester

WISE OLD SANTA IS HERE AGAIN . . .

His bright red cotton suit—like his spirit—shows no sign of fading with age. Long exposure to the light of the midnight sun—and many a washing and ironing, made necessary by his silent descent through millions of chimneys, have had little effect on its original brightness. Santa Claus was wise indeed in having his suit dyed with Pfister Naphthols.

We hope that the sight of this jovial gentleman in his colorful garb will add to the pleasures of your holiday season . . . that the Spirit of the Season will remain with you well into the New Year.

Pfister Chemical Works

RIDGEFIELD NEW JERSEY

and

DYER S. MOSS, COMPANY, Charlotte, N.C.

Southern Representatives

AUXILIARY PRODUCTS

UVITEX RBS

DYESTUFFS

NEOLAN BLUE 3R . . .
Flavine GFE
Violet 5RF

FROM CIBA RESEARCH

LYOFIX CH

CIBANONE
BRILLIANT PINK 2R PASTE
BROWN RV DOUBLE PASTE
GOLDEN ORANGE 3G PASTE
RED FBB DOUBLE PASTE
RED RK DOUBLE PASTE

LYOFIX SBW CONC.

CIBA RED
2B DOUBLE PASTE

SAPAMINE MS

CIBACETE
RED B
TURQUOISE BLUE G
PRINTING BLUE 2B

ANOTHER BANNER YEAR!

CIBA research and product development are a continuous and active part of our service. As direct evidence of this, here at CIBA we have made available within the past year these timely additions to our product listings.

We invite all users of dyestuffs and textile processing materials to consult with us on how these new CIBA developments can help to increase processing efficiency, simplify handling and improve end-product results at lowered costs.

CLOTH FAST RED 2BL
AND BORDEAUX B

COPRANTINE BLUE BLL
BORDEAUX 2BLL CONC.
RUBINE RLL
VIOLET BLL

CHLORATINE
FAST YELLOW 7GL

CIBA COMPANY INC.

627 GREENWICH STREET, NEW YORK 14, N. Y.

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WYANDOTTE ANNOUNCES

Another FIRST!

KREELON CD

the only promoted industrial detergent on the market!

It's a fact! Kreelon* CD is the first promoted industrial detergent ever offered in one product —the only product of its kind on the market today. Developed by Wyandotte and available only at Wyandotte, it combines the advantages of an excellent synthetic detergent and an excellent detergent-promoter.

What does this mean to you? If cotton's your line, you'll find that Kreelon CD will do a far superior job for your scouring, kier boiling, after-soaping and in other phases. It imparts superior soil removal properties . . . provides greater prevention of soil redeposition . . . will give much brighter color. And if you're in wool, silks or synthetics, you'll find Kreelon CD excellent for your processing operations.

Strong claims—yes, but we can back them up. Let us show you how the use of Kreelon CD can save you time, trouble and money. We'll be glad to work with you—no obligations, of course. Get the jump on competition—write us today.

Fast facts about Kreelon CD

- Kreelon CD can be substituted for the anionic detergent you're now using—and you'll get 20% to 70% improvement in soil removal and whiteness retention.
- Kreelon CD dissolves rapidly—is easy to use, fast-acting. It is also dustless.
- Kreelon CD is economical. A promoted detergent containing Garbose*, it gives you the advantages of a synthetic detergent and detergent-promoter in one product. It's ready to use – saves you storage space, handling and mixing time.
- In the processing of cotton, Kreelon CD is far more efficient than any synthetic detergent alone. It delivers superior results in scouring, kier boiling, dyeing, bleaching, desizing and finishing.
- In the processing of wool, Kreelon CD is highly effective in raw wool scouring, carbonizing and dyeing. In silks and synthetics, it is recommended for desizing, bleaching and scouring.

Reg. U. S. Pat. Off.

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA
CALCIUM CARBONATE • CALCIUM CHLORIDE • CHLORINE
HYDROGEN • DRY ICE • SYNTHETIC DETERGENTS • GLYCOLS
CARBOSE (Sodium CMC) • ETHYLENE DICHLORIDE • PROPYLENE
DICHLORIDE • AROMATIC SULFONIC ACID DERIVATIVES
OTHER ORGANIC AND INORGANIC CHEMICALS

Wyandotte CHEMICALS
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Wyandotte, Michigan
OFFICES IN PRINCIPAL CITIES

American Dyestuff Reporter, Vol 40, No. 25, December 10, 1951. Published every other Monday. Copyright 1951, by Howes Publishing Co., Inc., 44 E. 23rd St., New York 10, N. Y. Domestic subscriptions, $5.00; Canadian, $6.00; Foreign, $10.00. Entered as second-class matter, Nov. 6, 1919, at the New York, N. Y., Post Office, under the act of March 3, 1879.

AMANTHRENE* VAT COLORS
provide the answer to the demand for
better color fastness in textiles.

Amanthrene

in paste or powder form

A complete range of superior VAT COLORS

Particularly recommended for PRINTING fine cotton and rayon dress fabrics and draperies. Unequaled for all around fastness to washing, chlorine or peroxide bleaching and soda boiling.

Pleasing in their self-shades . . . fully satisfying in combinations. Naturally, the AMANTHRENE colors are equally well suited for DYEING cotton and rayon fibers.

A.A.P. technicians will be happy to demonstrate any of the AMANTHRENE range in your plant. For detailed information on the complete range available, as well as data regarding your individual requirements, consult our nearest branch.

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50 Union Square, New York, N. Y. • **Plant: Lock Haven, Pa.** • **Branches:** Boston, Mass. Providence, R. I. • Philadelphia, Pa. • Charlotte, N. C. • Chicago, Ill. • Los Angeles, Cal. Chattanooga, Tenn. • **Dominion Anilines & Chemicals, Ltd.** • Toronto, Canada • Montreal, Canada

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TESTING FOR DYERS & FINISHERS

The United States Testing Company, Inc. offers to the dyeing and finishing industry a complete program of testing that is "tailor-made" to the specific needs of the field. With this service no step in production need be left to chance – every end-use requirement can be anticipated. The following program can be followed in its entirety or by selected tests:

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Color Fastness Tests
Shrinkage Tests
Crease Resistance
Mildew Resistance
Weathering Tests
Dimensional Stability
Moth Resistance
Sew-ability of Fabric Finishes
Water Repellency

TESTING FOR DYERS

Type of Dye
Comparison with Standards
Money Value
Determination of Maximum Absorption of Dyestuffs
Controlling Uniformity
Water Analysis
Repellent Substances Quantitatively
Control of Dyestuffs in Dye Baths
Control of the Uniformity of Coatings on Fabrics during Processing
Dye Assistants
Scouring Agents
Fuel Analysis

We can perform every test in accordance with A. A. T. C. C. test methods.
Please write and we will arrange discussions pointed to your particular requirements.
Address all Inquiries to our SERVICE DIVISION

UNITED STATES TESTING COMPANY, INC.

Established 1880

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*KERANOL nk®

gives woolens, cottons and rayons a very desireable, soft full hand...

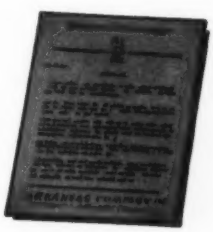
***Durable to Washing and Dry Cleaning**

Your woolen, cotton and rayon fabrics finished with KERANOL N K will have a truly mellow, glove-like hand, durable to washing and dry cleaning. KERANOL N K is unaffected by variable pH values, so may be used with greatest efficiency in neutral, alkaline or acid baths.

Mail the coupon for further information.

Additional – and highly valuable – use of KERANOL N K: as a plasticizer and softener in conjunction with all types of resin finishes.

EXCELLENT RESISTANCE TO YELLOWING!



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P.O. Box 210
Newark, N. J.

Gentlemen:
Please send, without obligation:

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- ☐ sample and application procedure
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Arkansas Co. INC.

MANUFACTURERS OF INDUSTRIAL CHEMICALS FOR OVER 45 YEARS
NEWARK, NEW JERSEY

Meet The Complete ATCO Line of Fine Textile Chemicals

PRODUCT CLASSIFICATION	PRODUCT APPLICATION
DETERGENTS	
Atcopal D Conc. **Atcopal D**	Ethylene oxide condensate, non-ionic, non-rewetting. A powerful synthetic detergent for the scouring of all type fibers and fabrics, excellent wetting agent for enzymes and water repellents. Stable to acids, alkalies, and hard water.
Atcopon Special	Sodium salt of oleoyl methyl tauride in gel form. A powerful synthetic detergent with high foaming properties and much more effective than soap. Excellent for boiling-off cottons, woolens and synthetics. Recommended for scouring of piece goods and for print washing. Stable to acids, alkalies, and hard water.
Atco X-500	Fatty acid amine condensate with an excellent combination of detergent, wetting and re-wetting properties. Recommended for kierboiling, print washing, and general boil-off. Used as scouring agent and for re-wetting in sanforizing.
Atco CSN	A combination of emulsifying agent and detergents with dry cleaning solvents. Particularly adapted to the boiling-off of goods containing wax and grease and for the removal of greige mill oil.
Atconil PW-35	A combination of nonionic and anionic detergents which has been specifically prepared for the washing of printed textiles. Stands contamination brought into the bath on printed cloth.
Atcowet B	Modified alkyl aryl sulfonate in liquid form. Economical synthetic detergent for all-purpose scouring and washing. Produces stable copious foam under all conditions. Has very high wetting powers in sulphuric acid carbonizing baths. Stable to acids, alkalies, and hard water.
SOAPS	
	A complete line of soaps is available from low titre liquid soaps to high titre solid soaps, tailored for specific processes such as wool scouring and fulling, kierboiling, scouring of cottons, etc. The line includes the following:
Atco Soap 55	55% low titre red oil soap for fulling and wool scouring.
Atco Soap M	High titre, tallow-cocoanut oil soap for wool scouring and long felting and fulling time.
Atco Fig Soap	Low titre soap used in the scouring of woolens and worsteds.
Atco Cold Scour	A solvent liquid soap for wool scouring and fulling at low temperatures. Copious foam.
Atco Solvent 50B	Pine oil solvent soap for rayon boil-off and kierboiling.
WETTING AGENTS	
Atcopen 2P	All-purpose wetting agent for dyeing and boiling-off.
Atcopen 2T	All-purpose highly concentrated wetting agent for dyeing and boiling-off.
Atco Merpene Special	A highly stable fast-acting wetting agent in highly concentrated caustic baths. Particularly adapted for mercerizing under all conditions, in high and low temperatures. Does not lose efficiency on standing in caustic.
Atco Carbowet B	Wetting agent for sulphuric acid carbonizing baths. Produces some foam.
Atco Carbowet BNF	Non-foaming wetting agent for sulphuric acid carbonizing baths.
DYEING ASSISTANTS	
Atconil O-20	Ethylene oxide condensate of a fatty alcohol. Vat dyeing assistant in low concentrations, vat stripping agent in higher concentrations. Does not affect tensile strength of fiber.
Atconil DAC-25	Made specifically for the dispersing and dyeing of acetate colors and is recommended for no other use. Controlled dispersive and foaming properties.
SULFONATED OILS AND SOFTENERS	
	A complete line of sulfonated oils and fatty acids is available in any concentration desired.
Sulf. Tallow	Highly sulfonated high grade tallow in 25%, 50% and 75% concentrations, manufactured for specific processes such as cotton finishing.
Atcotal	Highly concentrated sulfonated tallow made specifically for cotton finishing. High SO_3 content.
Sulf. Castor Oil	50%-75% concentrations, highly sulfonated refined castor oil for dyeing and finishing.
Sulf. Red Oil	50%-75% concentrations, highly sulfonated refined red oil for textile dyeing and scouring.
Sulf. Soya Bean Oil	50%-75% concentrations, highly sulfonated refined soya bean oil for textile finishing.
Sulf. Peanut Oil	50%-75% concentrations, highly sulfonated refined peanut oil for textile finishing.
Atco Finishing Oil DR	A combination of highly sulfonated vegetable oils scientifically combined for softening of all fibers.
SYNTHETIC SOFTENERS	
Atcosoft SD	Cationic softener to impart durable softness to cotton, wool, and synthetics. Minimum effect on shade and light fastness.
Atcosoft RA-25	Cationic softener to impart durable softness to wool, cotton and rayons. A soft-flowing paste which is soluble in cold as well as hot water. Minimum effect on shade change and light fastness.
Atcosoft N	Has anionic and cationic properties. Little or no effect on light fastness and shade change. A durable substantive softener.
Atco Resin Softener UF	Anionic softener designed specifically for use with Urea Formaldehyde and Melamine resins. Imparts durable, soft hand to resin finishes.
ENZYMES	
Atcozyme Powder	Amylolytic-proteolytic fast acting, low temperature powder. Very stable to storage.
Atcozyme H Sol.	High temperature resistant amylolytic-proteolytic enzyme solution, recommended for all methods of desizing cotton and synthetics. Adaptable to the high temperature rapid pad steam method of desizing.
Atcozyme H Pwd.	High temperature resistant amylolytic-proteolytic enzyme powder, recommended for all methods of desizing cotton and synthetics. Adaptable to the high temperature rapid pad steam method of desizing. Very high storage stability.
ANTI-STATIC AGENTS	
Atco Anti-Static N-30	Produces a destaticizing effect on nylon, acetate and wool fabrics. Has anionic and cationic properties. Sold in paste form.
Atco Anti-Static X-30	Destaticizer for nylon, acetate and wool fabrics. Sold in liquid form.
GRAPHITE REMOVERS	
Atco Graphite Remover LV	Compounded to be used on nylon and synthetic lace fabrics for the quick and efficient removal of graphite. Low viscosity type.
Atco Graphite Remover HV	Compounded to be used on nylon and synthetic lace fabrics for the quick and efficient removal of graphite. High viscosity type.

WEIGHTERS	
Atco Weighter #1	A heavy salt and gum weighter to impart weight and body to cotton and synthetics.
Atco Weighter #2	A gum weighter to impart weight along with a firm, full-bodied resilient hand.
Atco Weighter #250	Combination of heavy salts in paste form to impart extreme weight and body to cotton and rayons.
DULLERS	
Atco Light Duller	Imparts delustering effect and dullness on smooth, shiny fabrics. Made specifically for light to medium shades.
Atco Dark Duller	A pigment dispersion and binder combination specifically designed to impart dullness and a delustering effect on dark colored, shiny synthetic fabrics.
RESINS	
Atco Paste Resin 400	Urea Formaldehyde low polymer paste resin. 50%-55% solids to impart crease resistance and shrinkage control to rayons.
Atco Liquid Resin 150	A 50% high polymer Urea Formaldehyde resin syrup to impart stabilization with a permanent, firm, full-bodied hand to cotton, wool and synthetics.
Atco NS	A very fine stable emulsion of polyvinyl acetate to impart a permanent, firm, full-bodied hand to cotton, wool and synthetics. Can be applied with Urea Formaldehyde and Melamine Formaldehyde resins, etc.
SLIP-PROOFING AGENTS	
Atco Bindtex R	A slip-proofing agent for low count rayon and acetate fabrics.
Atco Slip-proof N	A slip-proofing agent for low count acetate and rayon fabrics with semi-durability and added weight and firmness.
ANTI-FUMES	
Atco GF	Specifically prepared for the finishing of colored acetate fabrics to prevent gas fading.
STIFFENERS	
Atcoperm	A resin modifier to be used with Urea Formaldehyde resins to add durable firmness and increase resistance to abrasion.
Atco Finish 80B	A combination of finishing gums to impart a firm, full hand in rayon and cotton finishing.
WATER REPELLENTS	
Atco Water Repellent	An aluminum salt wax emulsion, one bath water repellent for producing an economical and efficient non-durable waterproofing finish.
Atcodri 33	A highly concentrated aluminum salt, high melting point wax emulsion in combination with other waterproofing materials. Produces superior spray rating with low concentration on fabrics very difficult to water repel.
Atco Water Repellent WM	A one-bath water repellent — mildewproof finishing compound. It contains 26% wax along with 6.6% dihydroxy dichloro diphenylmethane made specifically to pass Government specification JAN-D-504 on OD cotton ducks and other Government fabrics requiring waterproof-mildewproof finish. Gives high spray rate, passes soil burial test and is very resistant to hydrostatic pressure.
Atcodri A & B	A two-package, one-bath water repellent composed of aluminum and zirconium soaps and high melting point waxes to produce semi-durable water repellent finishes on acetate, nylon, tackle twill, and other fabrics difficult to waterproof. Resulting finish is free from marking off.
Atco Mulsion P	A stable, nonionic wax emulsion of 50% solids that is stable to acid, alkali and electrolytes. Used in resist printing and for finishing where wax stability is required.
ANTI-FOAM	
Atco Hydrofoam	A product designed to stop foaming in finishing baths, printing pastes and in solutions of surface active agents.
STRIPPING AGENTS	
Atco Liquid Strip	A liquid stripping agent for use in stripping wool colors.
GUMS	
Atco Gum Trag	High viscosity, smooth flowing gum trag solution triply strained to insure freedom from grit and dirt in finishing and printing.
Atco Locust Bean Gum	A smooth flowing, clean locust bean gum solution for finishing and printing.
Atco Vat Gum	A prepared gum for screen and Calico vat printing.
Atco Gum Arabic Solution 50%	A triply strained, clear, smooth flowing gum arabic solution of 50% solids, free from grit and dirt for finishing and printing.
LACQUERS	
Atco Printing Lacquer #667	Particularly adapted for metallic printing on cotton and rayon. Will produce taffeta hand on silks and pigmented rayons.
Atco Lacquer Thinner #667	Thinner to be used with Lacquer #667.
Metaperm	A resin emulsion specifically prepared for printing or binding pigments and metallics without curing.
WATER SOFTENERS	
Atco Water Softener	Prevents the formation of metallic soaps in the scouring and dyeing of all textiles.
SEQUESTRIENTS	
Atcosene CCF	Sequesters calcium, copper and iron, prevents formation of metallic soaps in scouring. A definite aid in silk scouring with soap; prevents dulling of shades in dyeing because of metallic salts.
MISCELLANEOUS	
Atco Soluble Wax	Gives luster finish and full, soft, drapy hand on cottons.
Atcofix D	A concentrated, stable solution of a quarternary ammonium derivative for the fixation of colors. Applied as a simple after-treatment, will fix direct colors against bleeding when exposed to water, sea water, perspiration and prevents creeping or bleeding when piled wet.
Atco Flameproof	A water soluble product for reducing inflammability of fabrics. Fabric so treated was tested by the Better Fabrics Testing Bureau Inc., and met the requirements of the Board of Standards of the City of New York.
Atcosolve TR	Used for the removal of tar in wool processing.

BETTER TEXTILE PROCESSING THROUGH *Better Textile Chemicals*

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ATLANTIC CHEMICAL CO., INC.

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CANADA: Granby, Quebec **NEW JERSEY: W. Paterson**

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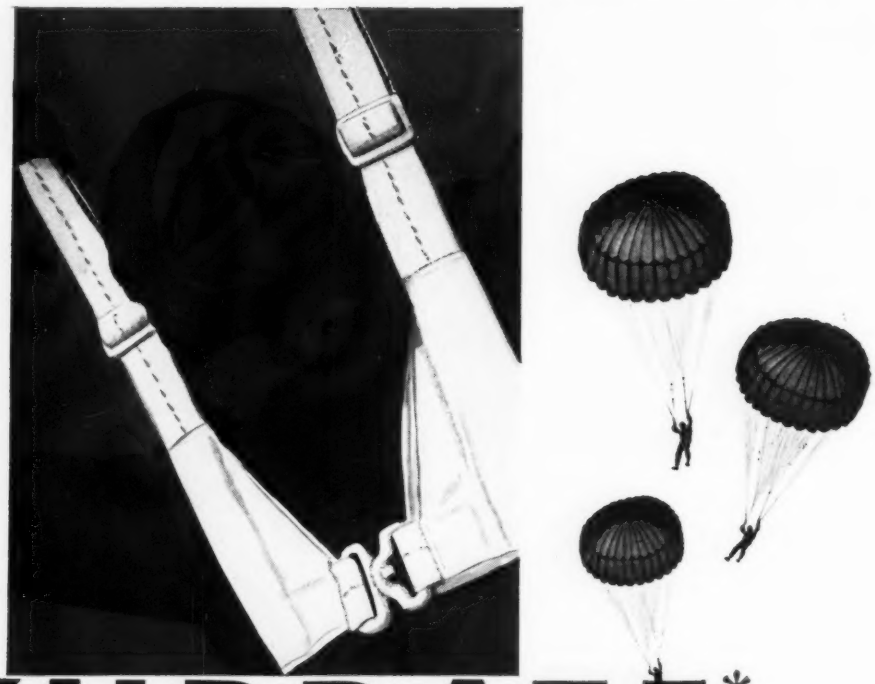
for positive **mildew-proofing . . .**



KUPRATE*

WARWICK'S COPPER-8-QUINOLINOLATE *(SOLUBILIZED)*

For all types of webbing . . . parachute harness, cartridge belts, safety belts, etc. . . . KUPRATE OS 10 WR, *with water repellency included,* is unexcelled. Finishers favor this new Warwick formula because it comes as a viscuous liquid—so much easier to handle.

Full details, plus samples and technical counsel are yours for the asking.

Other Warwick mildew-proofing agents:

- **KUPRATE OS 10 WR SPECIAL** . . . for tenting, duck, etc., where specifications require good spray rating and hydrostatic test.
- **KUPRATE OSC-10** . . . for rope and cordage primarily. Low in volatile constituents, it provides a product practically free from fire hazard.
- **KUPRATE OS 10** . . . for thread and for piece goods generally where water repellency is unnecessary or undesirable.

WARWICK CHEMICAL COMPANY, DIVISION of CHEMICAL CORPORATION — 10TH STREET AND 44TH AVENUE, LONG ISLAND CITY, NEW YORK

*REG. U. S. PAT. OFF.

CHEMICAL SPECIALTIES FOR THE TEXTILE INDUSTRY Antilustrole* dullers • Appramine* cationic softeners • Appretole* anionic softeners Eumercin* mercerizing assistants • Formaset* textile resins • Lanole* tar and grease removers • Organosol coatings for textiles and paper • Plastisol for coating and molding Setole* textile resins • Sulfanole* synthetic detergents • Suntone* pigment printing colors for textiles and plastics • Warcofix* color fixatives • Warco* GFI gas fading inhibitor • Warcolene* finishing oils • Warconyl* fire retardants • Warcosan* wetting and rewetting agents • Warcosol* penetrants • Weave-Lok* non-slip finish.

MORE PROFIT

with Taylor Dye Machine Control!

THE Dexdale Hosiery Co., (below) of Lansdale, Pa., reports *higher profits* since installing Taylor Automatic Dye Machine Control. Yes, those Taylor FULSCOPE* Temperature Controllers with Process Timers are helping Dexdale realize higher profits in at least three ways:

1. Uniformity of shades never before possible. Fewer rejects—fewer re-dyes!

2. Steam Saving because exactly enough—no more—is used to maintain required temperature in each dye machine.

3. Less Operator Responsibility. Operator merely sets a dial, then is free for other duties until signal light flashes.

THE SYSTEM WORKS LIKE THIS:

A. Desired dyeing temperature is set by outside adjustment knob.

B. Time for dyeing cycle is set on time dial (top left on each instrument).

*Registered Trade-Mark

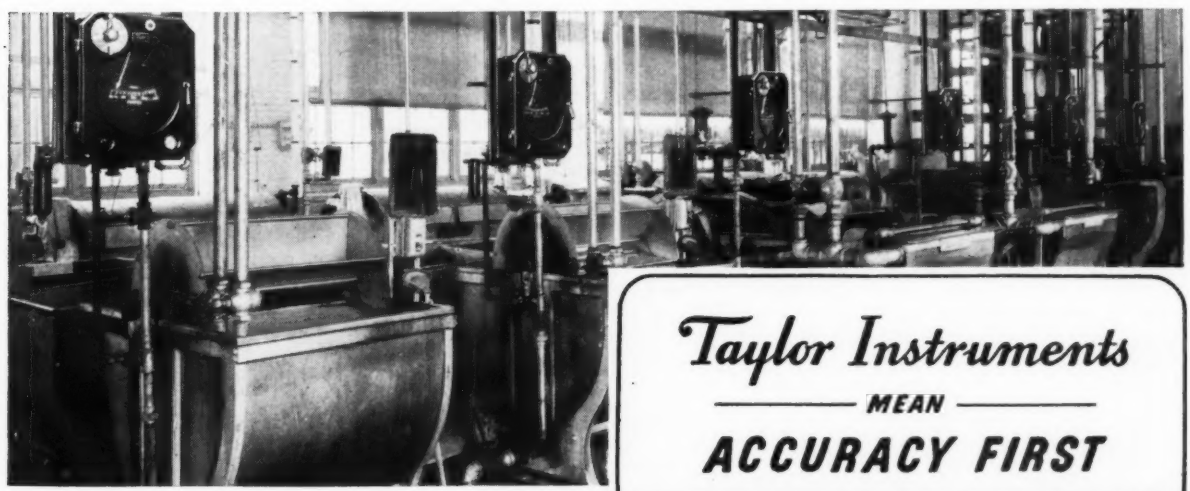
C. Steam is automatically turned on, quickly bringing vat up to set temperature. Once set temperature has been reached, automatic timing starts, controlling the process at that temperature for length of time pre-set on dial in step *A*.

D. At the end of that time, steam is automatically shut off and signal light informs operator that the dyeing cycle has been completed.

▪ ▪ ▪

All this adds up to keeping quality *consistently uniform* and costs at a minimum. We'd like to help *you* do this by solving your processing problems with accurate, automatic Taylor control. Ask your Taylor Field Engineer! Or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.*

Taylor's Centennial ACCURACY FIRST SINCE 1851



A few of the many Taylor-Controlled dye machines at Dexdale Hosiery Co., Landsdale, Pa.

Taylor Instruments
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ACCURACY FIRST
IN HOME AND INDUSTRY

print **brighter** colors with this new, non-corrosive, acid-forming catalyst

Now you can print brighter, sharper, clearer colors on silk, cotton, rayon and linen with vat soluble ester printing pastes . . . if you use Pfizer Ammonium Gluconate as the acid-forming catalyst.

This stable, non-toxic, non-corrosive salt reacts upon steaming to yield an efficient, non-volatile medium. Brilliant prints result from the ability of Ammonium Gluconate to:

1. **make more stable pastes.**
2. **inhibit the dulling action of metallic ions by its sequestering action.**
3. **develop greater color value.**

Pfizer Ammonium Gluconate is available as a dry, free-flowing, odorless, readily soluble powder in 50 and 100-lb. drums and in 250-lb. barrels. Write today for samples, prices and Technical Bulletin No. 6.

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FERRIC SODIUM OXALATE • FERRIC OXALATE • POTASSIUM OXALATE

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it's WISE to insist on DUROFAST

If you give a "hoot" about the reputation that your fabrics earn after they leave your hands . . . then insist on the finest, longest lasting colors for every yard of fabric you process. Insist on DUROFAST colors. For DUROFAST offers a complete range of direct colors, extremely fast to light and washing — with or without after-treatments. Don't be satisfied with anything less. Be sure to specify DUROFAST colors.

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COLOR CARDS • SAMPLES

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TECHNICAL INFORMATION

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DILEINE SINGLE

A Superior Inhibiting Agent For Processing Jig Dyed Fabrics Does Not Require Pretreatment

The exceptionally slow exhausting properties built into Dileine Single offer you maximum distribution of dyestuffs throughout large rolls of jig processed fabrics.

Dileine Single has unique leveling properties and is exceptionally stable to high temperatures. It offers superior protection against atmospheric fading.

Dileine Single is applied simultaneously with the dyestuffs. No pretreatment what-so-ever is required.

We would welcome the opportunity of sending you further data on the superior properties of Dileine Single along with samples for test purposes.

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A VERSATILE *National Aniline* WOOL DYE

As a base for Grays

As a shading color for Beiges, Tans and Browns

ALIZARINE LIGHT GRAY 2BLW

- Excellent fastness to light, washing and water spotting.
- Good neutral dyeing properties with superior exhaustion and excellent color value in union dyeing.
- Widely useful in both military and civilian applications, wherever a high degree of fastness to light and water spotting is essential.
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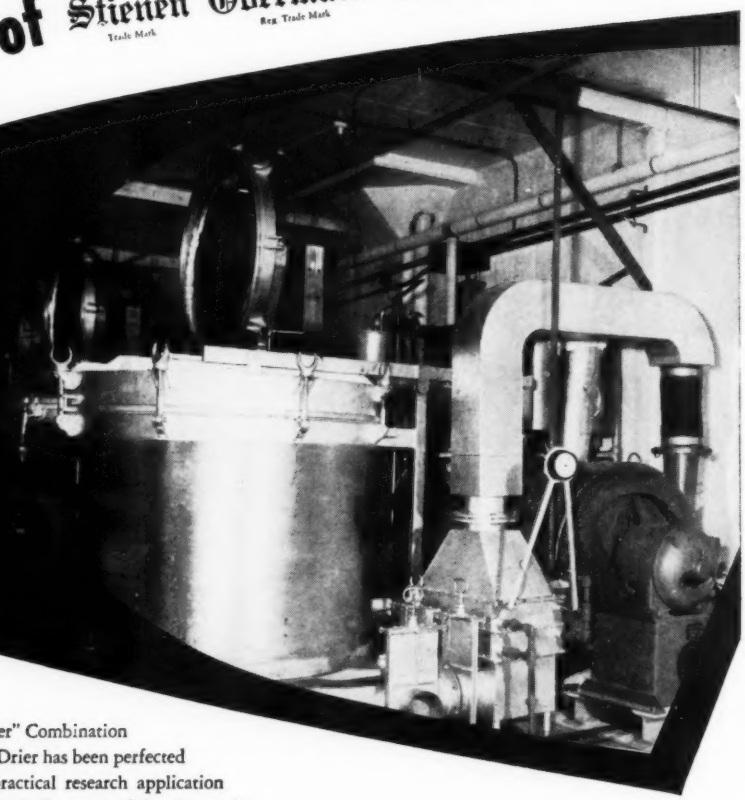
MORE PROOF of Stienen Obermaier leadership

COMBINATION EXTRACTOR-DRIER*

Substantially reduces labor costs and cuts drying time in more than half.



The "Stienen-Obermaier" Combination High-Speed Extractor-Drier has been perfected after many years of practical research application and has been enthusiastically received by the entire trade. This new system of extracting and drying has cut the total drying time more than half over other systems and has proven a superior method to any other available for package drying. This Combination High-Speed Extractor-Drier can be utilized by even the smallest package dyer to great advantage.

The quick drying time means faster turnover of yarn in the dyehouse, eliminating bottlenecks, and cutting production time in half. This means half the required floor space and half the material carriers.

In actual operation, the material carrier is removed from the dyeing machine and placed in the extractor-drier. For average production, the entire operation is handled in this one machine requiring 1½ to 2 hours. For larger production, the same machine is used for extracting. Additional Port Driers are used to maintain the same high-speed drying-results.

Submit your sample package to our laboratory and you shall receive exact data on your type of yarn.

The only *complete* laboratory unit made for sample dyeing, extracting and drying.

- **entirely electrically operated**
- **no steam required**

Stienen — LEAD WITH THE *Leader* — Obermaier

*PAT. PEND.

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INCORPORATED
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Eastman Black SN
Eastman Blue BNN
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Eastman Fast Blue GLF Conc.
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Eastone Yellow GN Conc.
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Eastman Acetate Dyestuffs are sold in the United States through Tennessee Eastman Company in Kingsport, Tennessee, and Lodi, N. J. On the West Coast, through Wilson Meyer Co.: San Francisco, Los Angeles, Portland, and Seattle. In Canada, through Clough Dyestuff Company Ltd., 33 St. Mathieu Street, St. Laurent, Quebec.

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Tennessee Eastman Company maintains fully equipped laboratories staffed with experienced and qualified research personnel both in Kingsport, Tennessee and in Lodi, New Jersey. These laboratories are organized for the express purpose of assisting the individual dyer. We welcome the opportunity of working with you on your specific acetate and nylon dyeing problems.

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Tennessee Eastman Company

Division of Eastman Kodak Company
KINGSPORT, TENNESSEE

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LOTOL* Compounded Latices—Ready to Use.

KRALAC* Plastic Latices.

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SHRINK-MASTER Process for Rendering Woolens Shrink Resistant and Long Wearing.

LATEX Natural and Synthetic.

KOLOC* Cationic Resin Compositions for Cotton, Rayon and Wool.

NAUGATEX* Dispersed Chemical Compounding Ingredients for all Latices.

KRALASTIC Flexible Plastic Latices.

DISPERSITE* Aqueous Dispersion of Rubber, Reclaimed Rubber or Resins.

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Division of United States Rubber Company

"HEADQUARTERS FOR LATEX, LOTOLS AND DISPERSITES"

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Cotton and the ULTRAWETS

From raw cotton to finished fabric . . . much of the processing involved can be improved by using the ULTRAWETS—a family of alkyl aryl sulfonates tailor-made for particular jobs. For example:

In soaping off after dyeing and printing: Liquid ULTRAWET 35KX is the most economical alkyl aryl sulfonate for volume use. Flake ULTRAWET K or bead ULTRAWET SK where dried products are desired.

In dyeing and printing: The liquids ULTRAWET 60L and ULTRAWET 30DS are particularly efficient as dye leveling and penetrating agents.

In kier boiling: Liquid ULTRAWET 45KX has excellent penetrating, emulsifying and detergent properties to help remove the natural waxes, pectin and soil from the cotton.

Cotton is just one of the textile fibers with which the ULTRAWETS are being used. They are equally important in the processing of wool and synthetic fibers. We will be glad to send you a brochure which will give you facts about the whole ULTRAWET family—liquids, flakes and beads. The Atlantic Refining Company, Chemical Products Section, 260 S. Broad St., Philadelphia 1, Pa.

SOME OF THE ATLANTIC PETROLEUM CHEMICALS ARE CURRENTLY IN SHORT SUPPLY

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NEW PROGRAM CONTROLLER AS EASY TO ADJUST AS YOUR RADIO

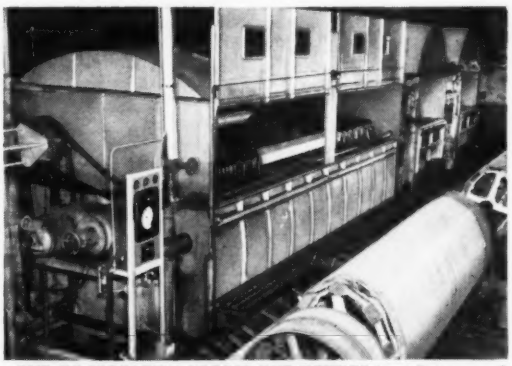
Gotham, first to bring you a completely enclosed Program Controller, was also first to conceive of all adjustments from the outside of the case. With the new Gotham Program Controller, incorporating the new outside adjustment principle, you can set the time, rate of rise, hold, and rate of cooling as easily as you tune your radio. You can control either temperature or pressure vs. time. Write for Catalog No. 500 describing in full the construction, operation, and application of the new Gotham Program Controller.

GOTHAM INSTRUMENTS

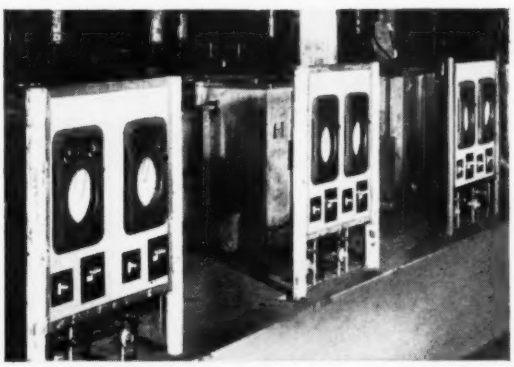
Keep Everything Under Control With Gotham

60 Gotham PC's at Botany

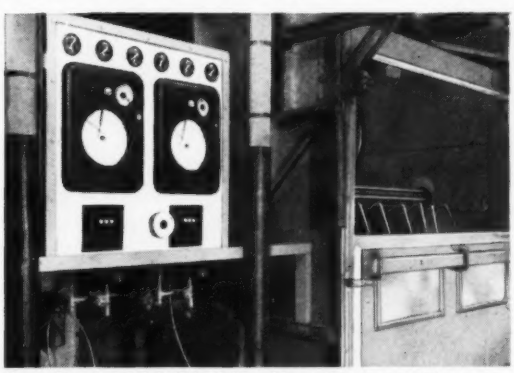
Over 60 Gotham Program Controllers are in use by famous Botany Mills, Inc., Passaic, N. J.



ONE OF WORLD'S LARGEST DYE KETTLES is at Botany and its dyeing cycle is supervised by Gotham Program Controller. Program control helps to maintain uniformity of the color.



12 TOP DYE KETTLE program controller units by Gotham are installed at Botany. Program control enables Botany to adjust quickly the variable time cycles required to get level dyeing.



EACH OF 48 DYE KETTLES like this at Botany, used for piece goods, is individually handled by its own Gotham Program Controller.

Photos: courtesy of Botany Mills, Inc.

GOTHAM INSTRUMENTS
Division of American Machine and Metals, Inc.
Dept. 4, 233 Broadway, New York, N. Y.

Please send me a copy of your latest catalog and more information about Gotham ☐ Program Controllers ☐ Timers ☐ Recorders ☐
Have your man call. No obligation, of course.

Name _____ Title _____
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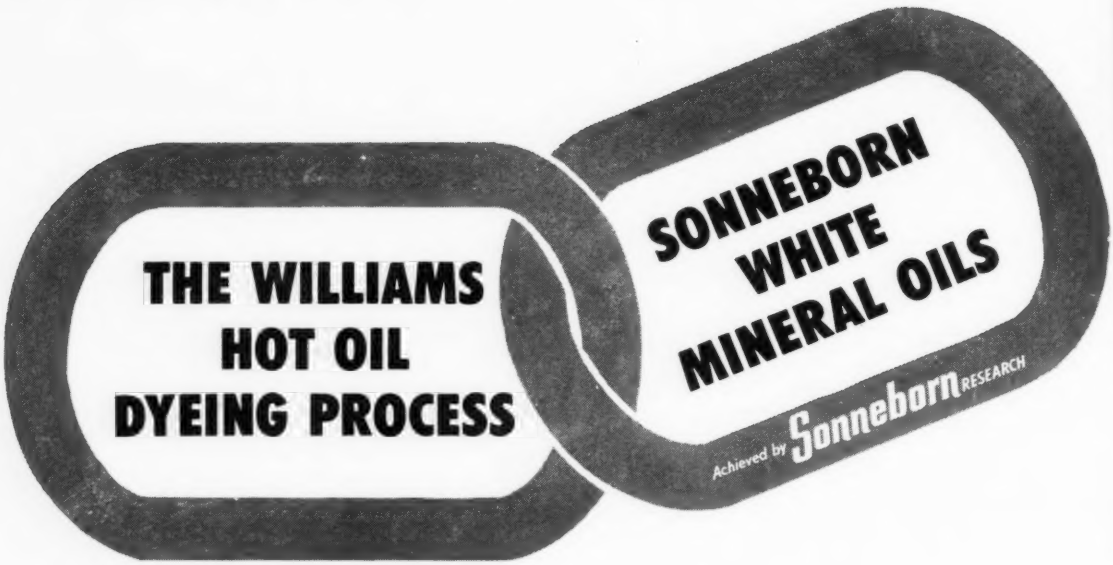
A Perfect Combination . . .



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- **BETTER THAN U.S.P. ACID TEST**
  . . . free of unsaturates and aromatics—will not dissolve color
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TEXTILE CHEMICALS DIVISION

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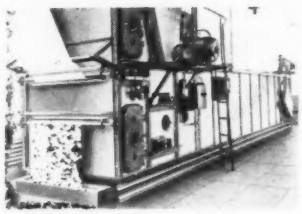
THE FIRST REFINER OF MINERAL OILS IN THE UNITED STATES

PROCTOR EQUIPMENT

for the TEXTILE FINISHER...

The equipment briefly described here gives a quick picture of the basic types of drying and curing systems that may be supplied by Proctor & Schwartz, Inc. for the finishing plant. Because of their intimate knowledge of the needs of the textile finisher—it will be to your advantage to consult Proctor engineers as soon as the need for drying equipment becomes apparent.

CONTINUOUS BLEACH SYSTEM

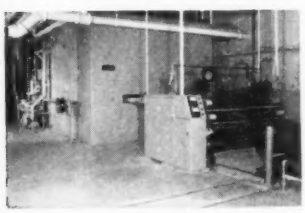


for handling goods in the open width, protecting fabrics from chafe marks, rope marks and other distortions to the weave, thereby offering better preparation for dyeing.

SINGLE RUN TENTER SYSTEM

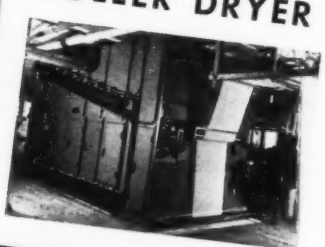
for high speed drying and high capacity operation with a variety of fabrics and finishes; makes possible high output with minimum steam consumption and low cost operation.

OVERFED PIN TENTER



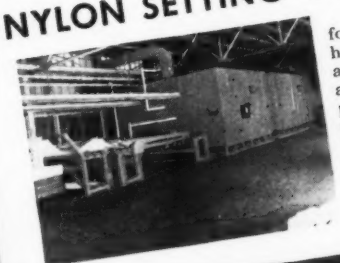
reflects Proctor's *long* experience in equipment for relaxed drying of resin treated materials; controllable overfeed, accurate guiding and balanced drying (makes possible excellent shrinkage and "hand").

ROLLER DRYER and CURER



a high capacity machine especially well suited for use in vat dye ranges; balanced circulation alleviates streaks and migration; top quality work characterizes this machine's performance.

NYLON SETTING EQUIPMENT



for handling goods as heavy as sailcloth and as fine as net; unique air-circulation makes possible an even and uniform setting so that fabric may be dyed without shading.

LOOP DRYER and CURER

a high capacity machine for drying dyehouse work; ideally suited for curing resin treated fabrics, waterproofing and similar operations. Many refinements in design make this the finest dryer of its type ever offered.

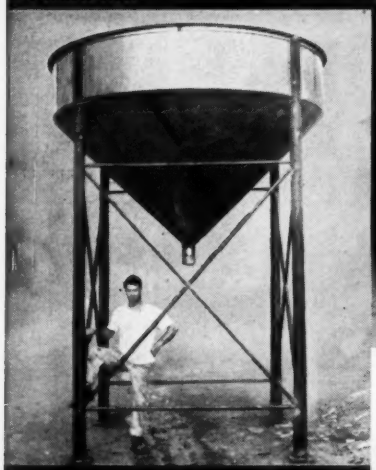
EQUIPMENT FOR REDMANIZED* FABRICS

making possible relaxation shrinkage through normalization, for tubular knit fabrics of cotton, cotton and wool combinations, and all wool jersey knits.

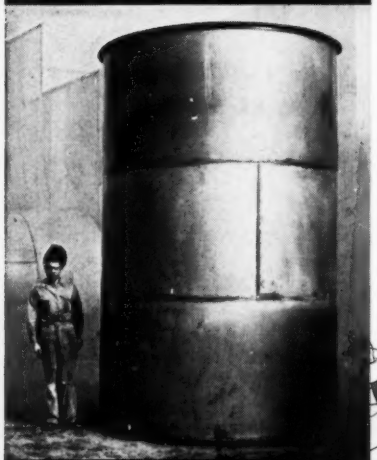
PROCTOR & SCHWARTZ, INC.
PHILADELPHIA 29, PA.

Custom Tailors . . .

RIGHT. Utilizing the original frame, Sims completely rebuilt the wooden body of this piece dyeing machine from stainless steel.



ABOVE. Stainless Steel Dye Storage Tank, highly polished inner surface, 1500 gallon capacity, milled steel supports. A Sims tailored job!



ABOVE. 12 foot Monel metal tank, 8 feet in diameter, ready for shipment.

# of STAINLESS STEEL!

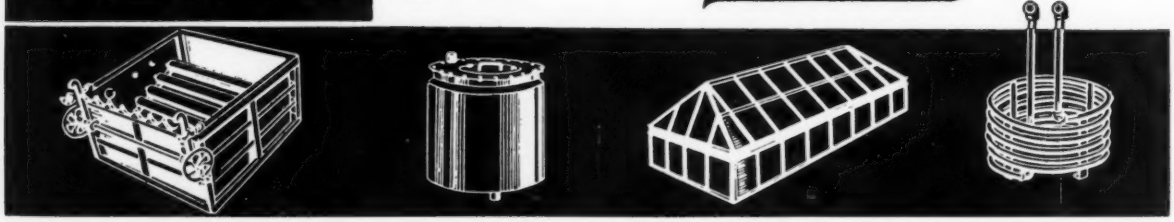
No idle boast is the statement that Sims craftsmen are not simply fabricators, but Custom Tailors of stainless steel. Called in by a bleachery and dye plant, whose own engineers—because of space limitations—had decided the job was difficult, Sims engineers designed and built a stainless steel dye storage tank with a 45° drainage slope, with a 1500 gallon capacity, which fit a limited overall height and yet allowed sufficient space under the tank for necessary machinery, and, finally, which adhered to a fixed diameter. Pictured at left, above, is the result—a typical Sims Custom Tailored job! For stainless and alloy fabrication to meet your most exacting requirements, call in a Sims engineer FIRST.

Write for "Stainless Steel Fabrication"—the complete story of Custom Tailoring by SIMS.

FABRICATORS SINCE 1928

Sims METAL WORKS

WEST POINT GEORGIA



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You can't buy better lauryl sulphates

There is a SIPON to meet every detergent need

Ammonium
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LAURYL SULPHATE

For scouring, wetting emulsifying, etc.

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Please send samples of
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COMPANY .....
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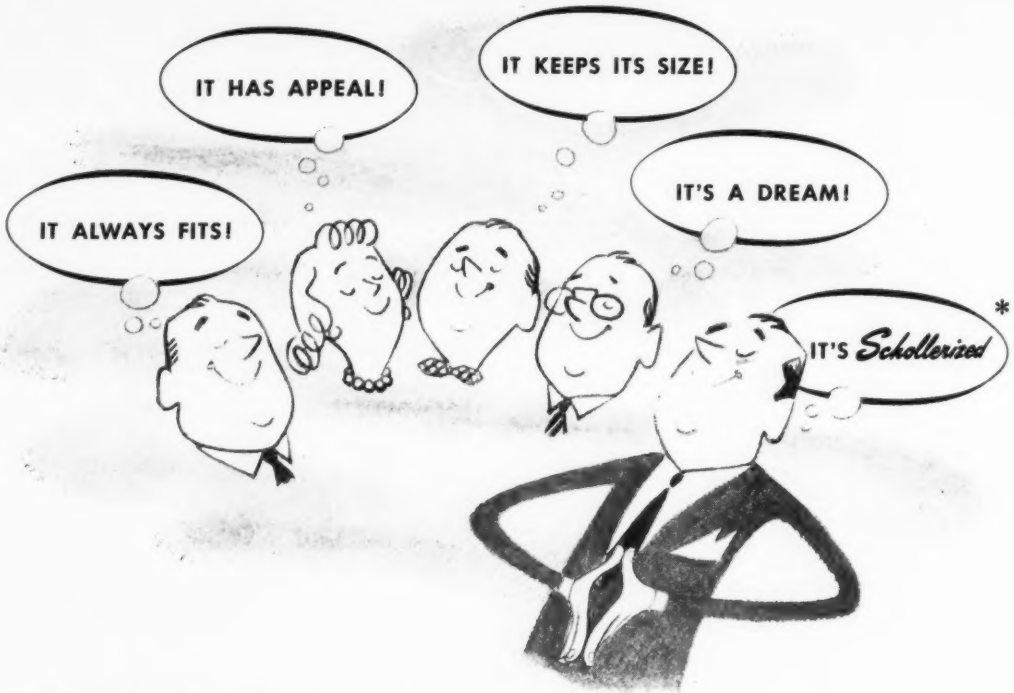

Markets are never really poor...
It's the sales appeal that loses the lure!
So sharpen your selling wits
And feature wool that always fits!

Demand the wool that has appeal
Wool whose size the tub can't steal
It's washable wool of high esteem
Schollerized wool...*the Consumers' Dream*

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WRITE FOR ALL THE DETAILS OF SCHOLLERIZING AS APPLIED TO YOUR WOOL PRODUCT!

Manufacturers of Scouring, Dyeing and Finishing Materials; Soaps, Softeners and Sulphonated Oils
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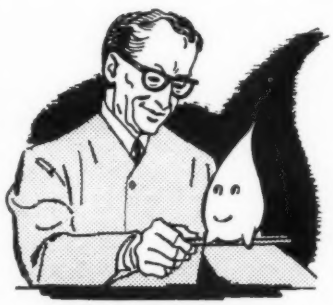
SCHOLLERIZE... *The SAFE Wool Shrinkage Control Process*

Subject them to Every Essential Test and You'll Find...

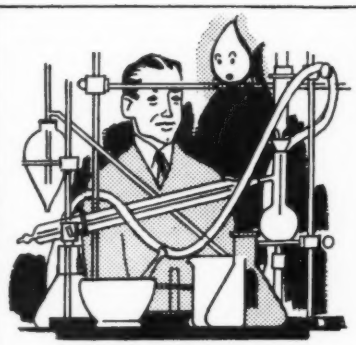
PENN DRAKE® White Oils

Will Give You *The Results Desired* in the

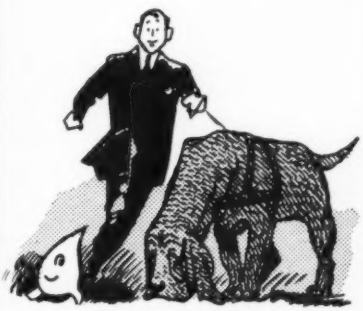
Williams Hot Oil Dyeing Process



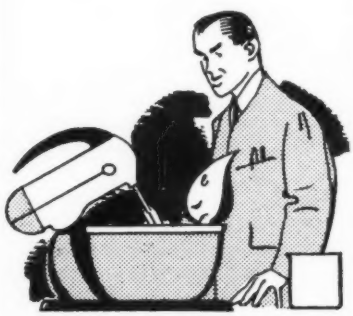
Accept our sample, turn it over to your chemist and let him analyze it most critically.



Try to detect some impurity or lack of stability.



Try to find some trace of odor, color or taste.



Compare its properties—point by point—with the material you are now using.

Check your findings against your specifications, or against your accepted standards for purity and performance.

Add up the score, compare the cost, and you will find you should be using Penn-Drake WHITE OILS!

Pure Penn-Drake White Oils also are supplied in grades for the processing of rayon and other synthetic fibres and for the formulation of yarn lubricants, finishing, coning and other oils. They are stable to heat and light.

If a regular White Oil won't do for you, write your own specifications and we will follow them exactly in giving you a White Oil with the "slightly different" characteristics you need.

May we send our sample?

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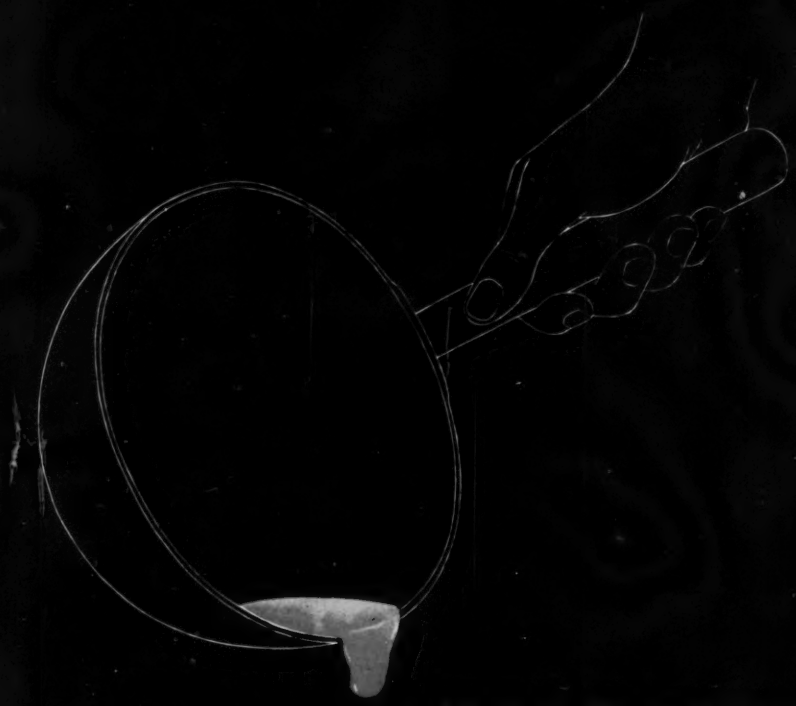
MAKERS White Oils (U.S.P., N.F. and Technical), Petrolatums (all grades and colors); INSECTI-SOL (deodorized insecticide base); Deodorized and other Naphthas; Petroleum Sulfonates; Waxes; Industrial and Motor Lubricants and Greases; Fuel Oils, and other petroleum products.



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Aribase Solutions are Interchemical's new line of stabilized bases for coupling with Interchem Napthols in your own plant.

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Aribase Solutions permit you to produce with utmost economy fast-color prints identical in fastness to those obtained with the Arigen* line of stabilized azoic dyes

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Aribase Solutions produce brilliant reds, scarlets, dark blues, and violets. They can be applied in conventional gum thickeners or by Interchemical's exclusive Aquadye* Emulsion method. They are particularly suitable for printing alongside Aridye Pigment Colors.

- For samples and complete information write Interchemical Corporation, Textile Colors Division, Hawthorne, New Jersey.

Interchem Dyes
Reg. U.S. Pat. Off.

Aridye PIGMENT COLORS
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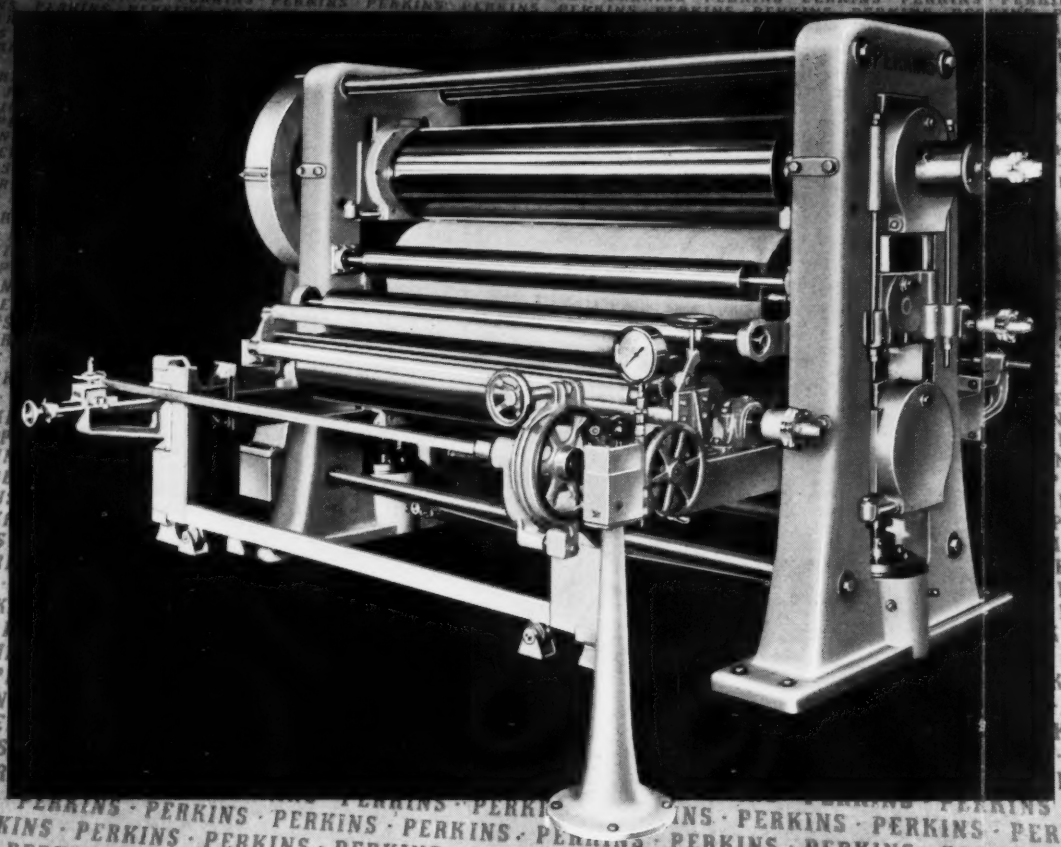

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to this new three-roll 83" face 60-ton Hydraulic Rolling Calender. Top and bottom rolls, chilled iron. Intermediate roll, cotton. This calender is equipped with variable speed drive, pre-heating drum, cooling drum, three-bar tension group and a let-off which is adjustable laterally and horizontally.

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HOLYOKE, MASS., U.S.A.

LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

FRIENDLY SERVICE
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CHEMICALS

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Liquid 50%, Standard and Rayon Grades
Liquid 70-73%, Standard Grade
Flake and Solid, 76% Na_2O

CAUSTIC POTASH
Liquid* 45%, Flake and Solid

NATURAL SODA ASH
Light and Dense

As a primary source of supply, Westvaco can give you the service you require from our expanding output of high-quality alkalis.

With delivery from various Westvaco plants via barge, tank car, tank truck or drums (whichever is most economical), you may be able to save time and money by talking things over with us. Just say when and where!

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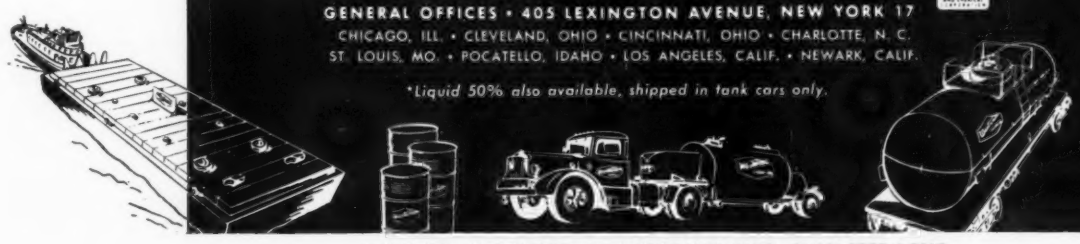
*Liquid 50% also available, shipped in tank cars only.



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HOW LIXATE BRINE CUTS DYEING COSTS

MORE UNIFORM DYEING: More and more plant managers are learning how to get better dyeing results, yet cut operating costs, by using Lixate brine. The use of saturated Lixate brine in the dye bath, instead of dry salt, improves the quality of finished goods by helping to eliminate spots, streaks and white edges. When dry salt is added, it tends to create areas of concentrated brine around the grains of salt. These concentrated areas drive excessive quantities of dye into fabrics, causing spots and streaks. Lixate brine helps overcome this difficulty because it disperses instantly and evenly through the bath, producing a smooth exhaustion of the dye.

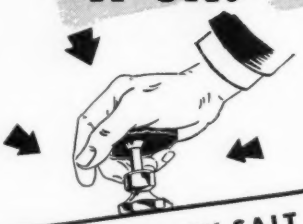
CUTS SALT CONSUMPTION: Many mills report that they use approximately 12% less salt when Lixate brine is used in the dye bath. This is because saturated brine is more efficient as an exhausting agent. One gallon of saturated brine contains 2.65 pounds of salt. But when used as the exhausting agent, one gallon of saturated brine appears to be equivalent to three pounds of dry salt. This is the figure used for best dyeing results by actual experience.

CUTS OPERATING COSTS: Results at mills that have changed from dry salt to Lixate brine indicate that brine increases plant efficiency and reduces operating costs. The brine method not only helps eliminate redyeing, but also cuts down on unnecessary salt handling because brine is made automatically and piped throughout the plant.

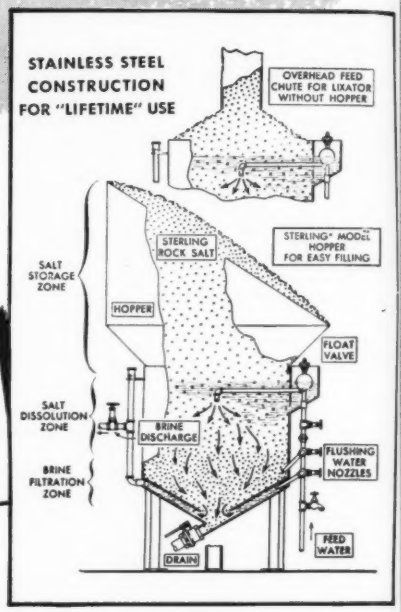
HOW IT WORKS: An engineering development of the International Salt Company, Inc., Scranton, Pennsylvania, the Lixator consists of a rock salt storage hopper over a dissolving tank with a brine collection chamber. Rock salt flows by gravity into the tank at the same rate it is dissolved, automatically replenishing the supply. Water enters near the top. As water flows downward, it dissolves the rock salt, until it becomes fully saturated some distance from the bottom of the tank. From that point on the remaining rock salt acts as a filter bed that removes all insoluble matter from the brine. As a result, when it reaches the collection chamber, the brine is crystal clear and fully saturated. Lixate brine is always crystal clear and neutral — free from acids and alkalies — and for that reason is also used to regenerate zeolite water softeners. The same Lixator provides saturated brine for this purpose and for use in the dye vats. Lixators may be made in any size to meet individual plant requirements.

BRINE! EXACTLY RIGHT WITHOUT MEASURING or STIRRING

JUST TURN IT ON!



STERLING ROCK SALT
BRINE DELIVERED BY PIPE TO EVERY POINT IN YOUR PLANT
- DYEING MACHINES
- DYEING VATS
- ZEOLITE WATER SOFTENERS



HOW LIXATOR* WORKS

In the dissolution zone—flowing through a bed of Sterling Rock Salt which is continuously replenished by gravity feed, water dissolves salt to form 100% saturated brine. **In the filtration zone**—through use of the **self-filtration** principle **originated by International**, the saturated brine is thoroughly filtered through a bed of undissolved rock salt. The rock salt itself filters the brine. Nothing else is needed.

WHAT THE LIXATOR PROVIDES

- ✓ **Chemical and bacterial purity to meet the most exacting standards for brine.**
- ✓ **Unvarying salt content of 2.65 pounds per gallon of brine.**
- ✓ **Crystal-clear brine.**
- ✓ **Continuous supply of brine.**
- ✓ **Automatic salt and water feed to Lixator.**
- ✓ **Inexpensive, rapid distribution of brine to points of use by pump and piping.**

Savings up to 20% and often more in the cost and handling of salt have been reported by many Lixate users. Why not investigate?

• Say good-by to "guesswork" and bother! You can eliminate shoveling, hauling, and laborious hand stirring of salt and water—with International's Lixate Process for Making Brine. Assures accurate salt measurement every time. Stops waste through spilling. Saves time and labor.

• The Lixator *automatically* produces 100% saturated, free-flowing, crystal-clear brine which may be piped to as many points in your plant as you wish — any distance away — by gravity or pump. YOU SIMPLY TURN A VALVE to get self-filtered LIXATE Brine that meets the most exacting chemical and bacterial standards.

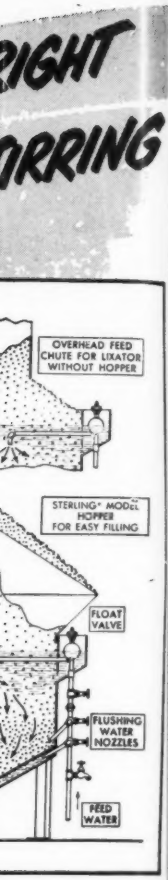
An INTERNATIONAL Exclusive

The **LIXATE*** *Process*

FOR MAKING BRINE

*REG. U. S. PAT. OFF.

INTERNATIONAL SALT COMPANY, INC., Scranton, Pa.


OVERHEAD FEED CHUTE FOR LIXATOR WITHOUT HOPPER
STERLING* MODEL HOPPER FOR EASY FILLING
FLOAT VALVE
FLUSHING WATER NOZZLES
FEED WATER

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...IRRING

...esswork" and
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... International's
...Making Brine.
... measurement
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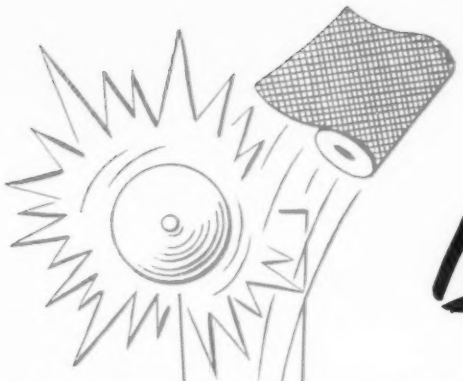
*REG. U. S. PAT. OFF.

...nton, Pa.



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50 million yds./wk. **1949**

36 million yds./wk. **1948**

20 million yds./wk. **1947**

8 million yds./wk. **1945**

500 thousand yds./wk. **1939**

Production figures of Du Pont Continuous Peroxide Systems reflect industry's acceptance of the process. A glance at the yardage figures shows the steady growth since 1939, when Du Pont's first units were put into commercial operation. Today, Du Pont Continuous Bleaching Systems are producing 85 million yards per week . . . and have sufficient capacity to bleach over 65% of the annual cotton piece goods production in the United States!

Substantial advantages over older methods brought on this upswing. The Du Pont System gives top-quality bleaching with high speed. It's most economical. Because it's continuous, the process permits a steady production rate . . . assures uniform results. Today, systems of all types are available to meet space and capacity requirements of any size mill. That's why more and more mills are finding Continuous Bleaching the modern answer to bleaching needs.

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If you are now operating a peroxide bleaching process of *any* type, you will be interested in getting the details on the Du Pont "Bleaching Process Analysis" Service—a free service designed to keep your bleachery operating at peak efficiency at all times. For additional information, address your requests to E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Del.

Why not see for yourself how Continuous Bleaching can benefit your mill? Send in the coupon below for our illustrated booklet which describes typical installations and explains all phases of the process. Du Pont technical men will be glad to survey your plant requirements and help you select the proper equipment. For further information, write to E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Del.

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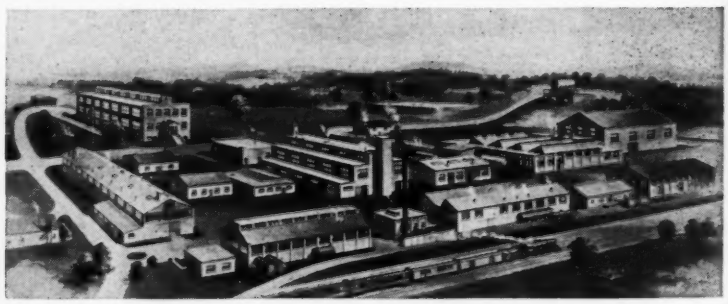

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Killing STATIC is not enough

If you can't say **"YES"** to these questions, your present anti-static agent is doing only half its job.

★ Does it spread evenly and thoroughly, covering all capillary surfaces of fibers or filaments?

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You can expect these "extras" and others, when you use Nopco "balanced" anti-static chemicals.

Reg. U. S. Pat. Off.

Whether it be wool, worsted, cotton, silk, rayon or nylon, Nopco textile chemicals are enabling manufacturers to profit by economies in processing, and obtain superior products. If you are not already using Nopco Anti-Static Agents, it will pay you to investigate. We'll gladly make recommendations based upon your specific requirements.

NOPCO * "Balanced" Anti-Static Chemicals

NOPCO 1656-R— *A moisture-free worsted oil applicable to all worsted production systems.*

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better hand...quicker sale

Mrs. America may not know what you mean by "a better hand," but she seldom buys a piece of yard goods without first making sure that it "feels right."

Santomerse No. 1, employed as your detergent in scouring after dyeing, helps you produce textiles that feel *right* and sell *quickly*. It helps you get a "better hand" because it prevents the formation of lime soaps that cause harshness.

"A better hand" is only one of the advantages of using Santomerse No. 1 in scouring after dyeing. After vat dyeing in continuous units, for example, acid-resistant Santomerse No. 1 makes less alkali necessary to neutralize the acid carry-over. It reduces crocking because it washes away all unattached dye pigment. It aids in level dyeing and leaves colors free of film and *bright*.

Santomerse No. 1 is an alkyl aryl sulfonate, with a minimum of 40% active ingredient. It is a rapid wetter and penetrant and a highly efficient detergent. Santomerse No. 1 rinses out quickly and thoroughly. It is efficient in hard or soft water, in hot or cold solutions, in acid or alkaline baths.

For information on the use of Santomerse No. 1 in any textile operation requiring a penetrant or detergent, contact the nearest Monsanto Sales Office or write MONSANTO CHEMICAL COMPANY, Phosphate Division, 1700 S. Second Street, St. Louis 4, Missouri.

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This liquid dyeing assistant has been developed especially for skein. It is very effective on Pure Silk, Acetate, Rayon, Bemberg, Nylon and the newer fibers Dacron and Orlon. Its high wetting and emulsifying power assists fibers in absorbing dye. It also posesses dispersing and dye leveling ability.

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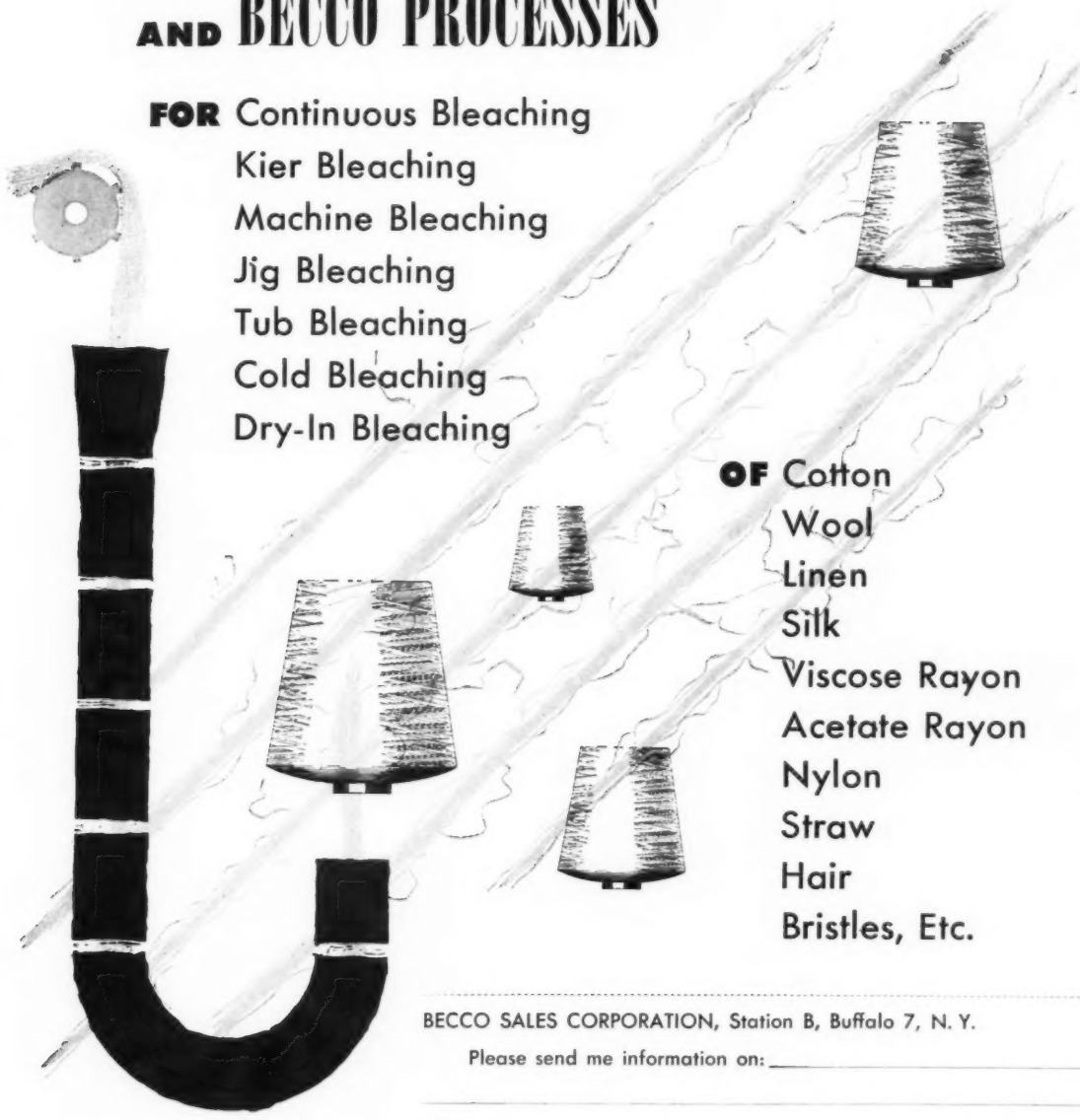

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the control that fits *your* dyeing needs

WHAT does your dyeing process require? Temperature Control? Controlled rate of temperature rise? Controlled dyeing time? Any one or all can be combined for you in a single Brown instrument . . . with either electric or pneumatic control. You can have the instrument that fits your specific dyeing needs . . . for dye becks, kettles, beam or package machines.

Write for Data Sheets 8.1-20, 8.1-32, 8.1-21, 8.1-12 for further details on instrumentation for piece goods dyeing, dye kettle control, hosiery dyeing and package dyeing.

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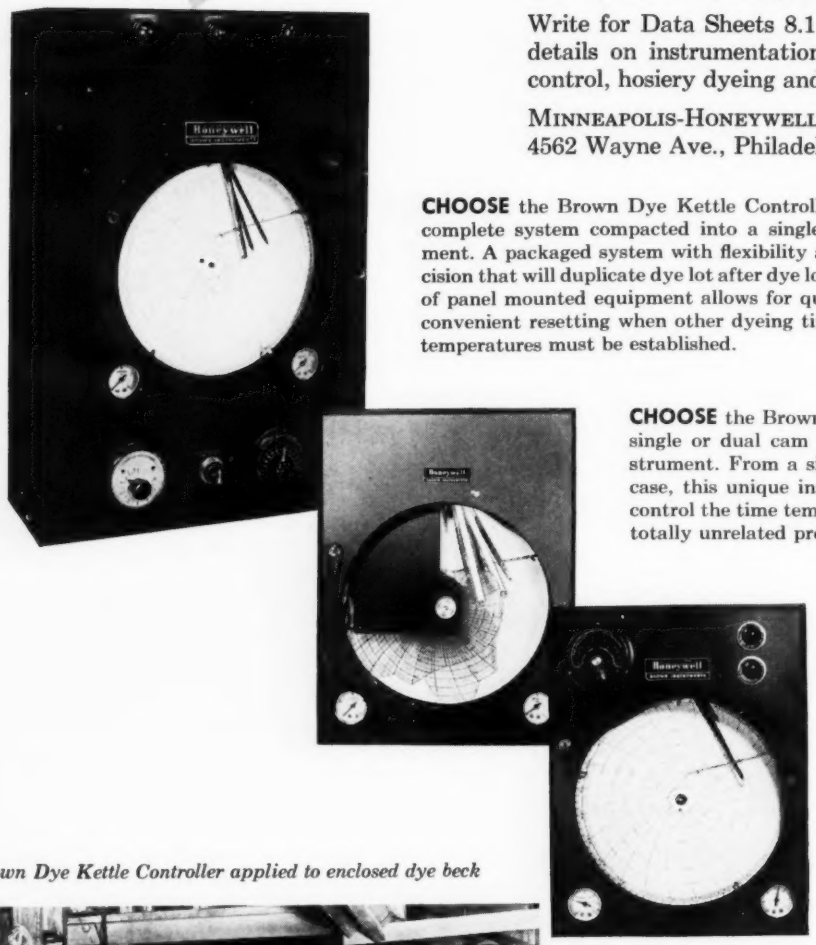

CHOOSE the Brown Dye Kettle Controller for a complete system compacted into a single instrument. A packaged system with flexibility and precision that will duplicate dye lot after dye lot. Front of panel mounted equipment allows for quick and convenient resetting when other dyeing times and temperatures must be established.

CHOOSE the Brown Program Controller for single or dual cam programming in *one* instrument. From a single location in a single case, this unique instrument will separately control the time temperature relations of two totally unrelated processes.

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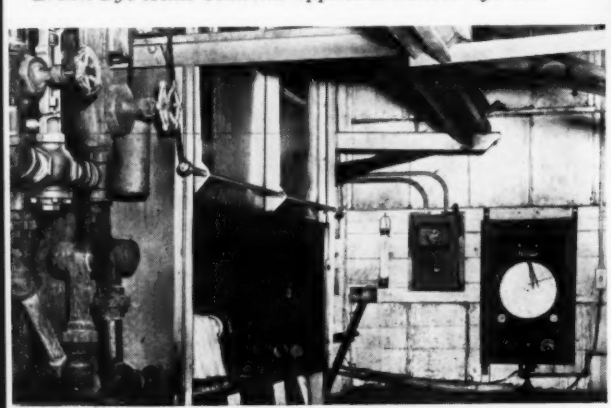
Brown Dye Kettle Controller applied to enclosed dye beck



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Onyx is ready to help you solve lubrication, finishing and dyeing problems that the new blends ahead in the textile industry are setting up.

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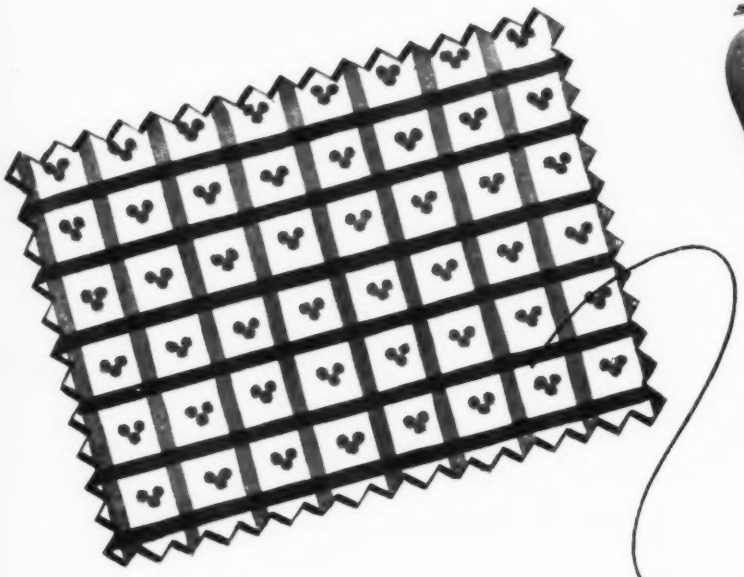

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Many textile mill men are using the Houghton Chart in choosing surface active agents for specific processing jobs. It was developed after fifteen years of textile research by Houghton engineers. It will help you choose the agent with detergent and/or wetting properties for any mill application. We will gladly send you one of these charts. Write to E. F. Houghton & Co., Philadelphia 33, Pa.

ASK THE HOUGHTON MAN
to show you how "Cerfak" and "Surfax" concentrated products are improving quality at lower cost for many mills.

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Ready to give you on-the-job service . . .

Direct Dyed

but triple fast

Not just fast to laundering and perspiration—fast to light, too!

Yes, CUPROFIX colors and after-treatment give cotton and rayon fabrics such a high degree of fastness *to all three* . . . that direct dyeing now compares favorably with more expensive vat dyeing!

But *only* with CUPROFIX can you expect direct-dyed fabrics to have satisfactory fastness to *sunlight.* Only CUPROFIX gives you triple fastness in direct dyeing.

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You save many dollars when you use direct dyes. For pennies more—relatively—you can make the big saving *without* sacrificing quality . . . and compete successfully with many vat-dyed fabrics.

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Label Resin-Treated Garments "WASHABLE"

Adding CUPROFIX to the resin bath increases fastness to washing sufficiently to permit labeling garments "washable" instead of just "dry cleanable". It also:

materially increases efficiency of the usual resin treatment

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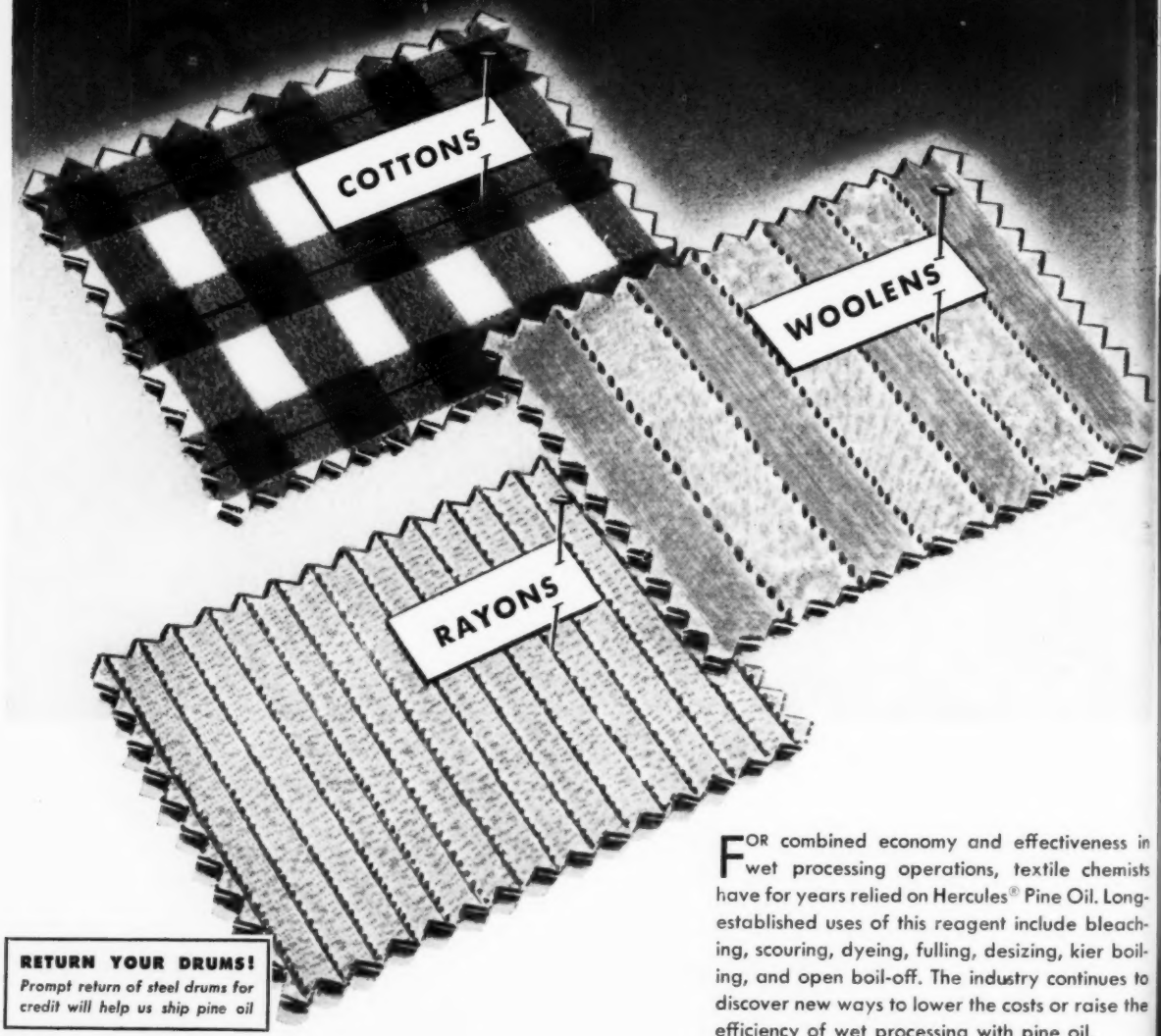

FOR combined economy and effectiveness in wet processing operations, textile chemists have for years relied on Hercules® Pine Oil. Long-established uses of this reagent include bleaching, scouring, dyeing, fulling, desizing, kier boiling, and open boil-off. The industry continues to discover new ways to lower the costs or raise the efficiency of wet processing with pine oil.

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PAUL CEZANNE
1839-1906

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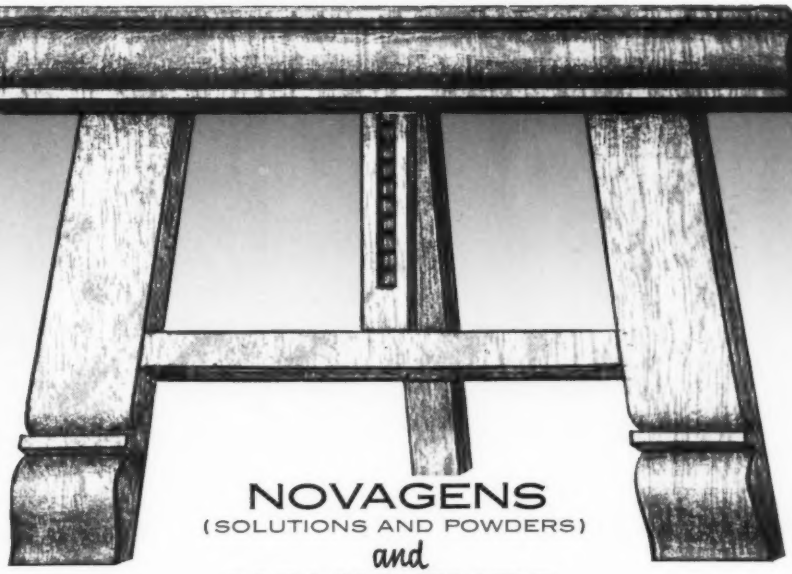

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diazotized color bases in solution which the printer can combine with any number of a full range of

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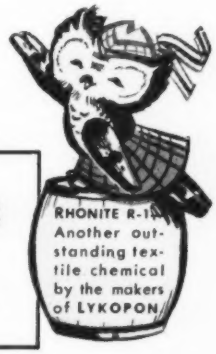
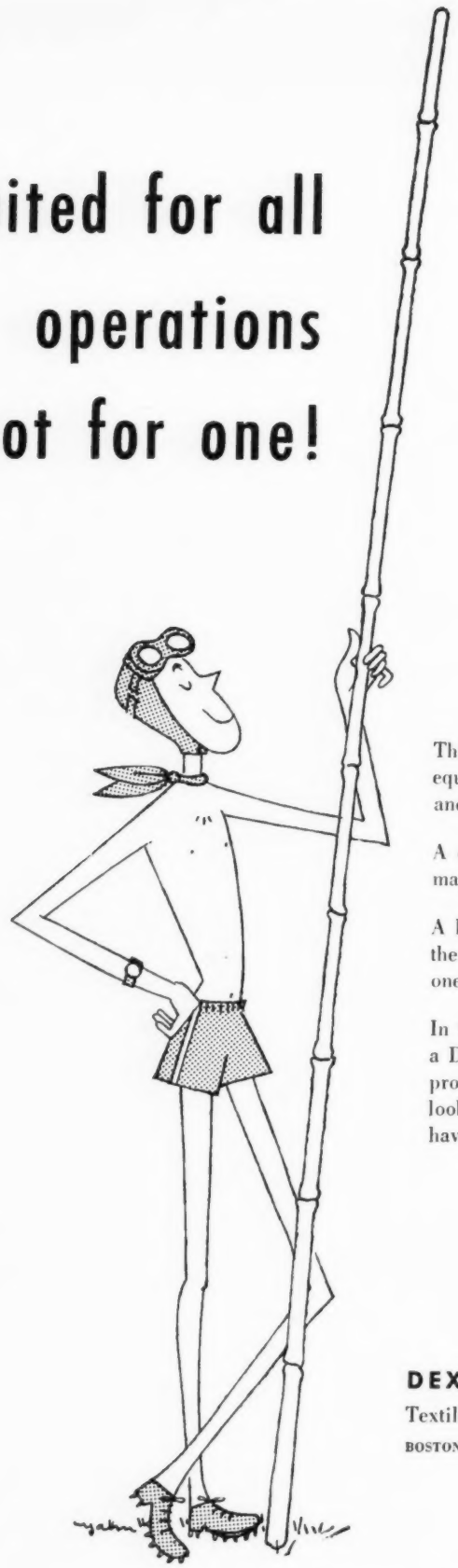


Suited for all operations but not for one!



This poor fellow is partially equipped to swim, leap or fly — and ill-equipped to do any one *well*.

A conventional textile chemical may suffer from the same inadequacy.

A Dexter chemical specialty, on the other hand, is developed to do one job well . . . *your job!*

In 97% of the trial runs made with a Dexter chemical specialty, improved processing is the result. If you look for improvement, or, if you have a problem, we can assist you.

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May the Season
bring Years of Peace...
of Peace on Earth,
Good Will toward Men.

Posed Exclusively for DURA BEAU
BETTY HUTTON
Co-starring in
Cecil B. DeMille's
"THE GREATEST SHOW ON EARTH"
A Paramount Release
Color By Technicolor

DECEMBER 1951

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TEXTILES
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Stability . . .
Reliability . . .

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When it's a matter of life or death, the product and the research behind it has to be right . . . has to *exceed* the most exacting specifications and safety factors.

Devotion to duty in peace as in war is exemplified by DREW CORONYL. This highly stable finish materially increases the *tear-resistance* of nylon parachute fabric.

Stability and Reliability are the *plus values* you get in every DREW TEXTILE PRODUCT. For special finishes and wet finishing operations, consult:

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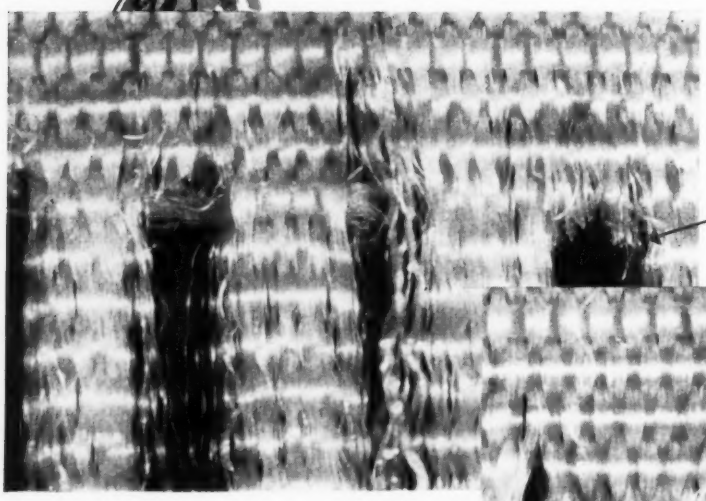
DREW PRODUCTS

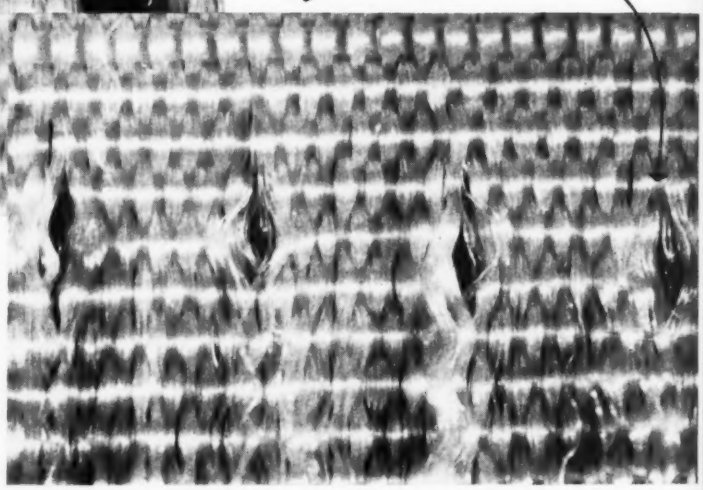
WEAK AT THE SEAMS... UNTIL FIBERS WERE LUBRICATED WITH PROFINE

What causes a well constructed fabric, sewed on modern machines, to exhibit excessive weakness at the seams? The pictures below tell the story.



Picture No. 1 shows the seam of a suiting fabric produced by a well known manufacturer. Needle damage . . . cut threads . . . can be observed where the fabric threads have been unraveled.

Seam threads pulled out here



Picture No. 2 shows a sample of the same suiting fabric . . . pre-treated *with Profine* and sewed under identical conditions. Needle damage is absent . . . no cut threads here!

Profine controls softness, body and hand. If your knitted or woven fabrics require a full-bodied hand, you can get it with Profine. This efficient finishing agent gives you good whites that won't discolor . . . provides good anti-curl cutting . . . permits high speed sewing.

Profine is designed to up-grade fabrics . . . to increase their saleability. Try it.

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MAKERS OF OLATE, PROXOL AND ORVUS PRODUCTS FOR BETTER TEXTILE PROCESSING

textile specialties

for dyeing, printing and finishing

detergency:	**TEXTRAFOAM:**	excellent penetration and detergency. All around dyehouse use.
water repellant:	**CHEM-DRI:**	Zirconium type water repellant. Durable to laundering and dry cleaning .
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non-slip:	**TEXRAGRIP:**	a positive weave lock finish; adjustable to desired handle.
gas-inhibitor:	**FINISH AF 2:**	Maximum protection at minimum cost.
anionic softener:	**FINISH SGS 5:**	Anionic finish giving a full, round, silky hand on crepes.
general:	**WEIGHTER AR** **DARK DULLER** **SOLUBLE PINE OIL** **FINISH 812**	

Our complete laboratory facilities are at your disposal. We stand ready to furnish you with technical data, product samples; and to demonstrate applications of our products right in your own plant!

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"Proper Processing inspires good design!"

says **CAROLYN SCHNURER**
popular American designer

"FASHION begins with the fabric," says Carolyn Schnurer, "and PROPER PROCESSING gives *so* much to any fabric! I examine dozens of fabrics every day, and I *know*. PROPER PROCESSING gives a material the life, sparkle and luxurious texture that inspire my loveliest creations!"

Carolyn Schnurer is only one of hundreds of well-known designers in America who agree that PROPER PROCESSING is the most important step in the creation of fine fabrics. That's reason enough for the choice of Colgate-Palmolive-Peet wetting, scouring, fulling and dispersing agents by so many top American mills, converters, finishers and dyers.

Whatever your fabric, whatever your processing problem, there's a C.P.P. soap or synthetic detergent perfectly suited to your needs. It will pay you to ask your local Colgate-Palmolive-Peet representative for details . . . or, write today to

INDUSTRIAL DEPARTMENT, COLGATE-PALMOLIVE-PEET CO.
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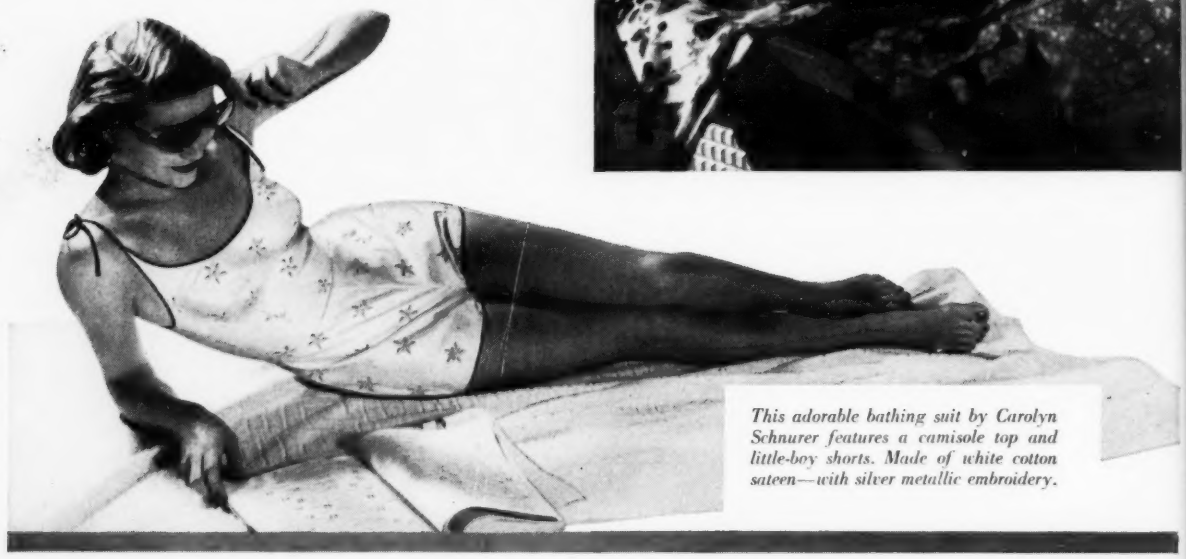

This adorable bathing suit by Carolyn Schnurer features a camisole top and little-boy shorts. Made of white cotton sateen—with silver metallic embroidery.

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For low-temperature washing ordinarily requiring olive oil soaps. Sold in eastern states only.

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High-grade thin white flakes. Not milled or polished. 90% anhydrous soap.

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CALCODUR* RESIN FAST BLUES

for superior fastness under resin treatment

The growing popularity of resin-finished viscose and cotton fabrics points up the important function of

CALCODUR RESIN FAST BLUE 2R
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These fast-to-light direct blues surpass accepted requirements for light- and wash-fastness, even in light shades. Assuring minimum shade change and maximum fastness under resin treatment, the CALCODUR RESIN FAST BLUES produce a wide range of pleasing blue shades. In combination with other resin-fast dyes they produce numerous popular shades of superior fastness on high-quality acetate-viscose suiting fabrics currently in great demand.

For further information on the properties and applications of CALCODUR RESIN FAST BLUES, consult your Calco representative.

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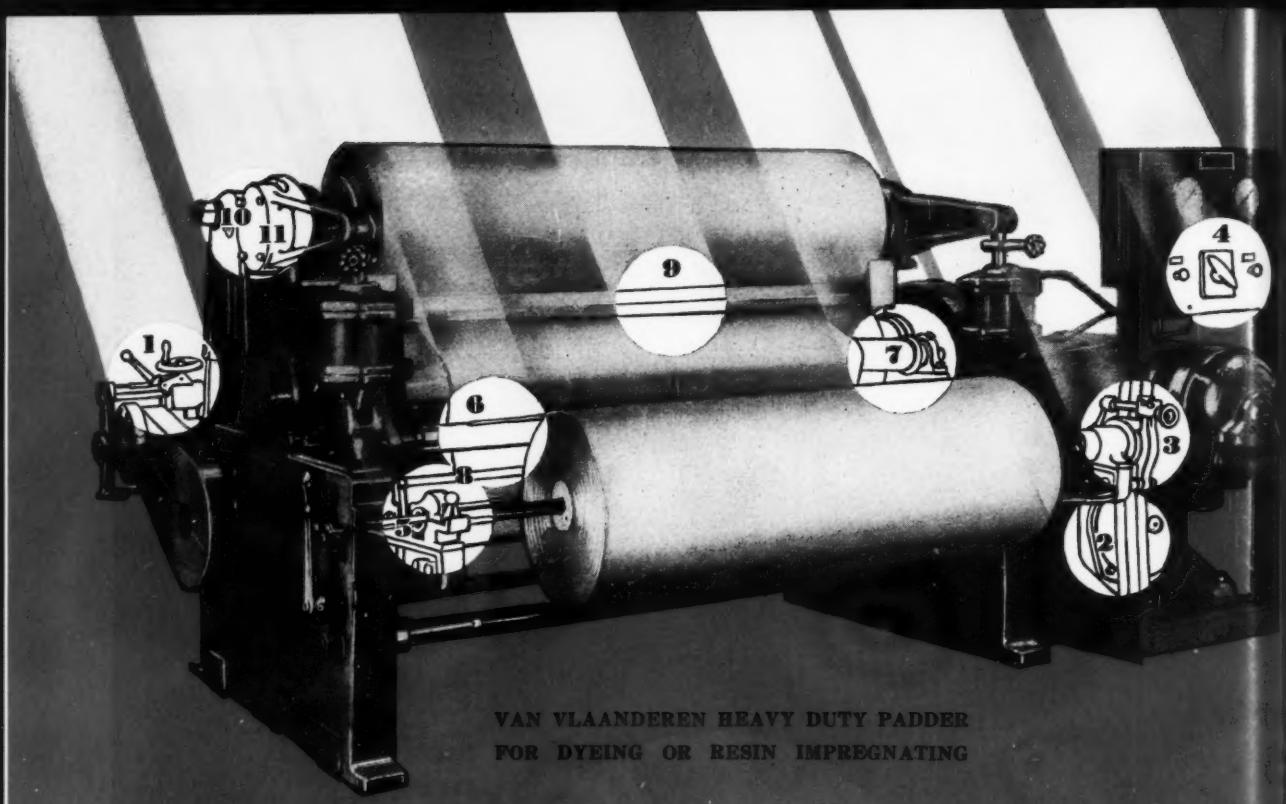
Canadian Selling Agents: Reliable Color & Chemical Company, 55 Cosens St. W., Hamilton, Ontario

Export Division Managers: Chester Fell, Bellevue Pharmacy Corp.



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FOR DYEING OR RESIN IMPREGNATING

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3. Malleable iron block brakes have tension indicator for easy reading and brake shoes are independently mounted for smoother action.

4. Pneumatic pressure system controls each cylinder separately, allowing operator to equalize nip pressure.

5. Both let-off and take-up bars have positive center bar locks.

6. All guide rolls are mounted on anti-friction bearings and made of stainless steel.

7. Two rubber covered expanders with sealed ends are provided.

8. The stainless steel pan can be easily and quickly lowered for cleaning.

9. Splash guards and nip guard assure safe, clean operating conditions.

10. Padder rolls are mounted on spherical roller bearings for smooth trouble-free service.

11. Both rolls are easily removed.

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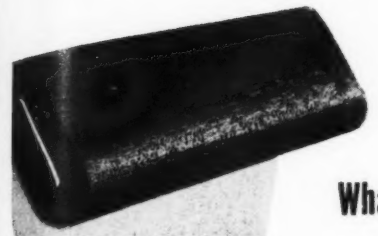
You are invited to see this machine.

370 Straight Street, Paterson 3, New Jersey

World's largest manufacturer of machines for processing modern fabrics



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textile specialties

. . . more economically and more profitably, too. Since 1909, market-wise textile mills have found Laurel laboratory- and mill-tested processing specialties give speedier production, better finish — more salable fabrics. We invite you to see for yourself how these dependable Laurel products make your processing dollars go farther. Let us arrange a practical demonstration in your plant. Write or call us today.

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NUODEX Textile Fungicide

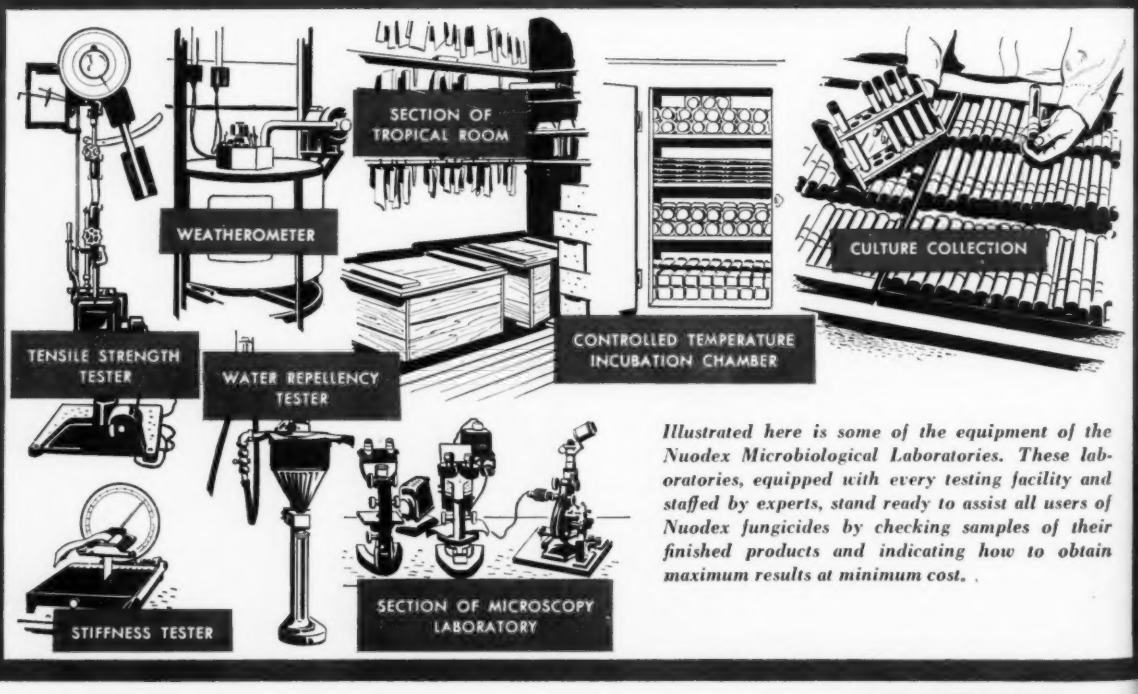
MEET ALL MAJOR

Government Specification

ONLY NUODEX brings you fungicides that enable you to meet every major U. S. Army, Navy, Air Force, Coast Guard, and Federal Specification for mildew-resistant treatment of textiles and cordage.

A pioneer in fungicide research, and holder of the Army-Navy "E" for production of mildewproofing and rotproofing agents during World War II, Nuodex offers a complete and diversified line of textile fungicides — naphthenates, non-naphthenates, metallo-organics, and organics, in solvent soluble and water dispersible form. From these you can prepare formulations exactly suited to your needs.

Whatever your mildew-proofing problem for military fabrics — webbing, tentage, tarpaulins, burlap, sandbags, netting, cordage — see Nuodex *first*. We'll make recommendations based upon your specific requirements, and advise how to apply Nuodex fungicides to very best advantage.



Illustrated here is some of the equipment of the Nuodex Microbiological Laboratories. These laboratories, equipped with every testing facility and staffed by experts, stand ready to assist all users of Nuodex fungicides by checking samples of their finished products and indicating how to obtain maximum results at minimum cost.

IF YOU HAVE A FUNGICIDE PROBLEM — SEE NUODEX FIRST

NUODEX TEXTILE FUNGICIDES – The Most Complete Line in the Industry

NUODEX COPPER 6%
Copper naphthenate in mineral spirits containing 6% copper metal

NUODEX COPPER 8%
Copper naphthenate in mineral spirits containing 8% copper metal

NUODEX COPPER HOH-6
Ammoniacal solution of normal copper naphthenate containing 6% copper metal

NUODEX COPPER NOH-11
Combination of normal and copper hydroxy naphthenates containing 11% copper metal (U.S. Patent)

NUODEX COPPER S-18
Mineral spirits dispersion of copper hydroxy naphthenate containing 18% copper metal (U.S. Patent)

NUODEX COPPER QN 18%
Combination of copper hydroxy naphthenate and copper 8-quinolinolate containing 18% copper metal (U.S. Patent)

CORDEX
Copper naphthenate in cordage oil containing 8% copper metal

NUODEX COPPER OLEATE 8%

NUODEX ZINC 8%
Zinc naphthenate in mineral spirits containing 8% zinc metal

QUINDEX
Solubilized copper quinolinolate in 10% concentration (Patent Pending)

QUINDEX W.R. 10%
Quindex combined with water repellents (Patent Pending)

QUINDEX EMULSION BASE
Quindex in a form emulsifiable with water (Patent Pending)

NUODEX MERCURY 25%
Mercury naphthenate containing 25% mercury metal

NUODEX 100 S.S.
Colorless, odorless, non-toxic organic fungicide in solvent soluble form (U.S. Patent)

NUODEX 100 W.D.
Nuodex 100 in water dispersible form (U.S. Patent)

NUODEX 100 CONCENTRATE
Nuodex 100 in cencentrated form for use in vinyl coatings (U.S. Patent)

You can meet all Government specifications covering current major procurements requiring mildew-resistant treatment of textiles with one or another of the complete line of Nuodex fungicides. To take some important examples:

Specification No.	*Nuodex Fungicide*	*Specification No.*	*Nuodex Fungicide*
MIL-T-11293	NUODEX COPPER 8% or QUINDEX	24-C-20	Performance specification. Consult Nuodex for recommendations.
MIL-D-10860	NUODEX COPPER NOH-11 or NUODEX COPPER S-18 (Nuodex hydroxy copper naphthenates) or NUODEX COPPER 8% (These fungicides to be used with slight additions of other Nuodex fungicides. Consult Nuodex for specific recommendations). Also permissable NUODEX COPPER QN 18% or QUINDEX.	MIL-R-16060	CORDEX
		MIL-R-1670	NUODEX COPPER 8% or CORDEX or QUINDEX
		MIL-M-5658	QUINDEX
		JAN-W-530	NUODEX COPPER 8% or QUINDEX W.R. 10%
MIL-F-4143	NUODEX 100 CONCENTRATE or QUINDEX	JAN-D-504	NUODEX COPPER 8% or QUINDEX

This abstract of certain U. S. Government Specifications for Textiles and Textile Products Requiring Fungicides lists 116 Armed Forces' Specifications for mildew-resistant treatment of textiles, by number, title and issuing agency. In each instance, the name and concentration of the applicable NUODEX fungicide (or fungicides) is supplied—making a handy guide and reference for manufacturers and processors in the textile and cordage industries. Send for your FREE COPY today.

And remember, Nuodex fungicides help you produce merchandise for civilian uses that has a *plus value* which assures consumer preference, lasting customer satisfaction, *increased sales.*

NUODEX PRODUCTS CO., INC.
ELIZABETH F, NEW JERSEY

NUODEX PRODUCTS CO., INC.
Elizabeth F, New Jersey
Gentlemen:

Please send me a copy of your ABSTRACT OF CERTAIN U. S. GOVERNMENT SPECIFICATIONS for TEXTILES AND TEXTILE PRODUCTS REQUIRING FUNGICIDES; also the data sheet(s) indicated here: _____
write name of fungicide(s)

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

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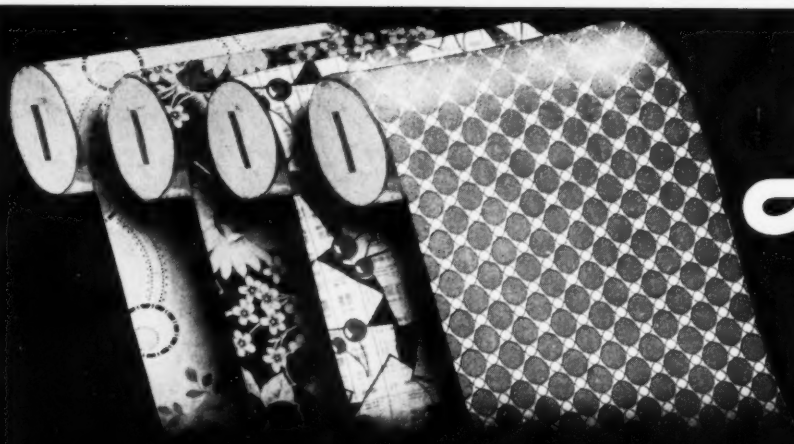

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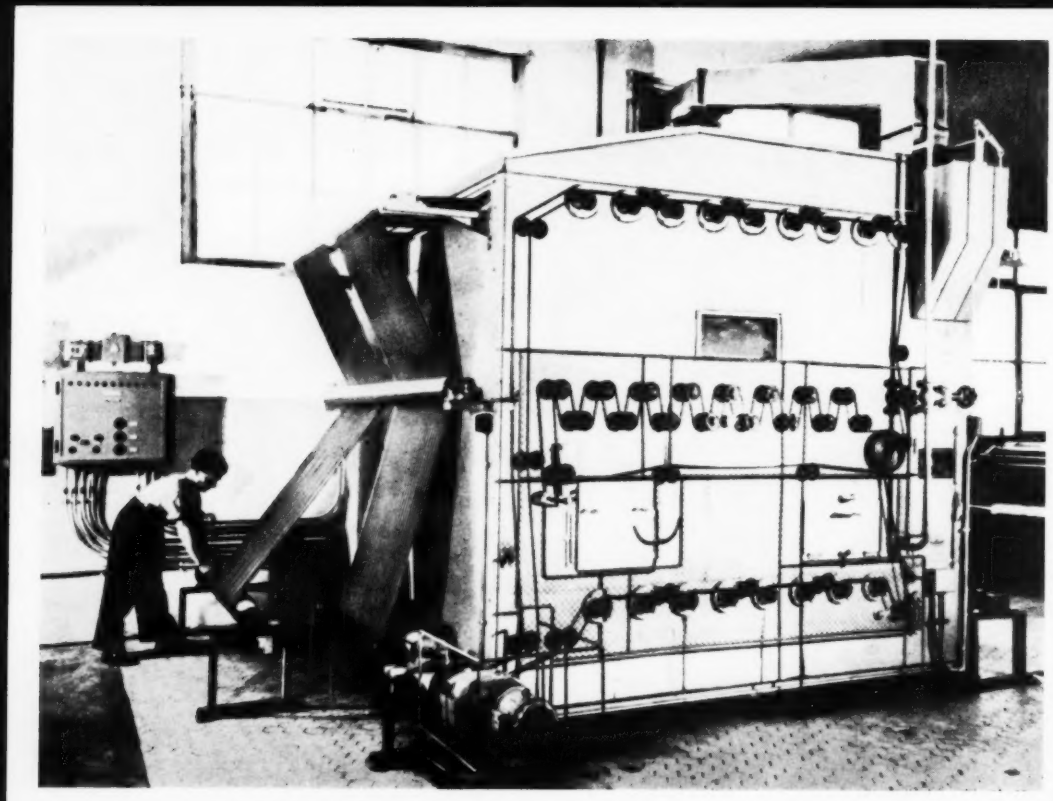

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That *natural* softness so desirable in fabrics is yours when you use AHCOVELS. AHCOVELS give fabrics a finer finish, smoother, flexible hand and softer drape!

Here are AHCOVEL performance features:

- ✓ Lasting resistance to usual laundering and dry cleaning.
- ✓ Good stability to heat and storage.
- ✓ Odorless.
- ✓ AHCOVELS E. — F. and R. assure full retention of light fastness of any color.

AHCOVELS A. and G. are cationic substantive softeners.

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Ask about AHCOVELS for cotton, wool and synthetic fibers.

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AHCOVELS

Texsoft makes a difference here

which makes a difference here

Armour's TEXSOFT gives a full, rich hand to cotton, rayon, wool—even resin-coated or preshrunk

A soft hand is very important in most textiles—and often it's hard to keep. For instance, detergents rob wool of its hand. Resin finishes, now in greater use, leave almost any fabric feeling harsh. To solve the problem of restoring the hand to goods, Armour has produced TEXSOFT.

TEXSOFT is a cationic softener, concentrated for greater purity and economy. It produces maximum lubricity with a minimum loss of absorbency. TEXSOFT is compatible with most commonly used finishing agents, such as starches, dextrins, glue and gelatin.

Important, too, is TEXSOFT'S economy. In many cases it can reduce your softener costs by as much as 33%.

Although textile chemists are generally agreed that *no* cationic softener is completely non-yellowing, TEXSOFT is suitable for most white goods, since it produces a minimum of yellowing. Also, there are almost no observable changes in shade and light-fastness.

If you have been unsatisfied with previous cationic softeners, TEXSOFT may be the answer to your problems. Write today for specifications and prices.

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Good hand—gives fabrics a good start

Cyanamid Textile Chemicals

DECERESOL® Wetting Agents
NO-ODOROL® Finishing Oils
AQUASOL® Sulfonated Castor Oils
Softeners • Penetrants
Sizing Compounds • Soluble Waxes

Cyanamid Textile Chemicals give fabrics the good hand that contributes to their acceptance by wholesalers and consumers alike. Other properties . . . such as good dye affinity, penetration, suppleness . . . help too—and you can select from Cyanamid's broad line of chemicals those that will best impart the desired qualities to your fabrics.

Let us demonstrate the efficient working properties of these products in your plant.

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When you buy W. C. Hardesty Co., Inc. Fatty Acids, you buy assured satisfaction plus prompt and efficient service—and shipments standardized to the same high quality every time.

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It's the color that adds beauty to the fabric. Garments made from these fabrics will rate high in eye-appeal. But the life of the garments will depend on the life of the colors. Excellent fabric and correct styling mean little if the garment is ruined by fading colors.

Colors must keep their fresh, new look through repeated laundering, dry cleaning and exposure to sunlight. When Du Pont vat and other fast colors are used in dyeing or printing, the colors stays in the fabric.

No matter what your dyeing problem may be, call on Du Pont's Technical Staff for assistance. They will help select the dye for your fabric that will give full color satisfaction.

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Indigosol Printing Purple IR
Indigosol Blue IBC powder
Indigosol Green IB powder
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Indigosol Brown 13B
Indigosol Brown IRRD
Indigosol Black AB2N
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Indigosol Yellow GCN
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Indigosol Brilliant Orange IRKL Paste
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Indigosol Scarlet HB
Indigosol Pink IR
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Indigosol Brilliant Violet 14R
Indigosol Red Violet IRRN
Indigosol O
Indigosol O4B
Indigosol O6B
Indigosol Blue IBC Paste
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Indigosol Brown IBR
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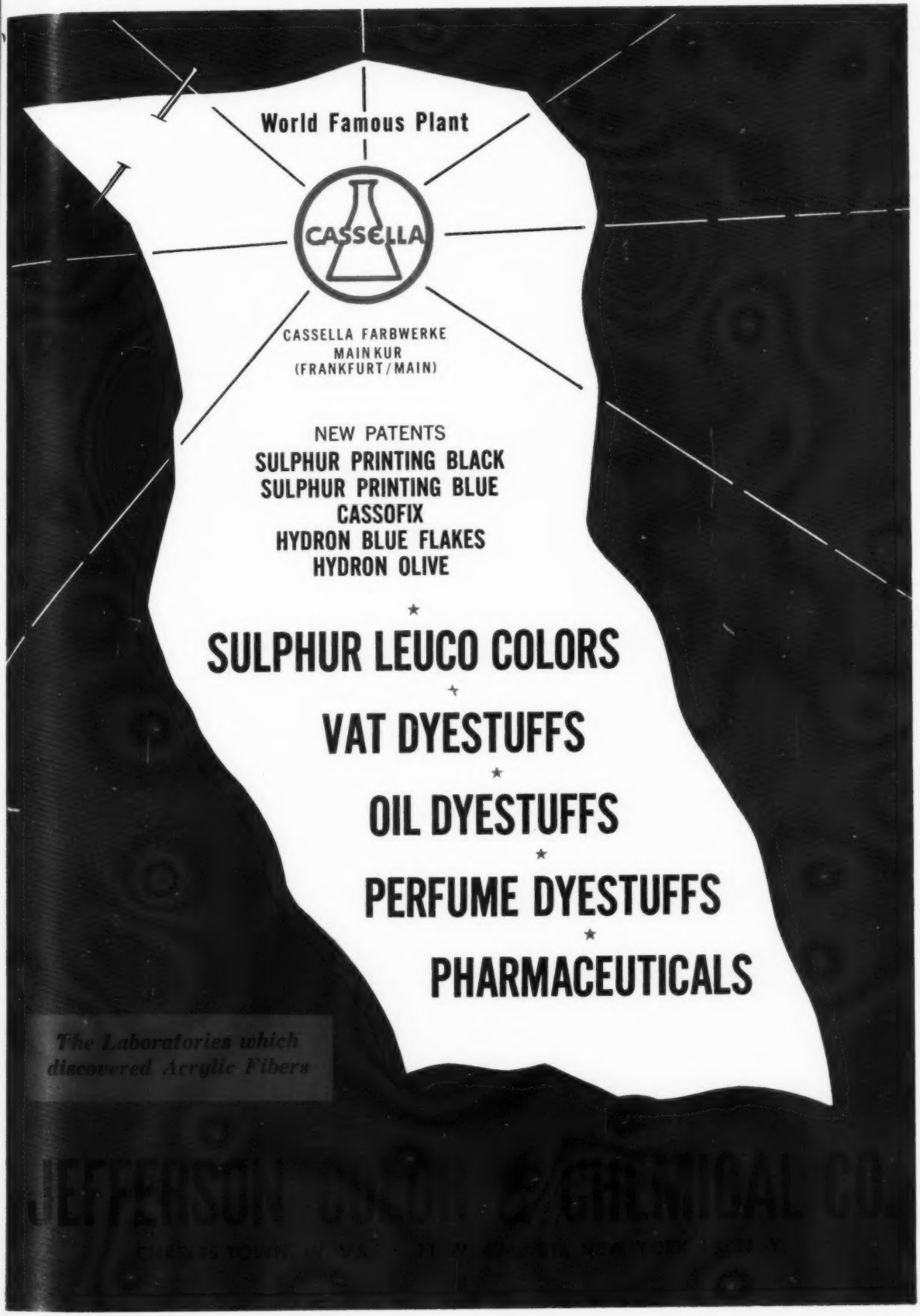
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1626

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DECEMBER 10, 1951
VOLUME 40 NUMBER 25

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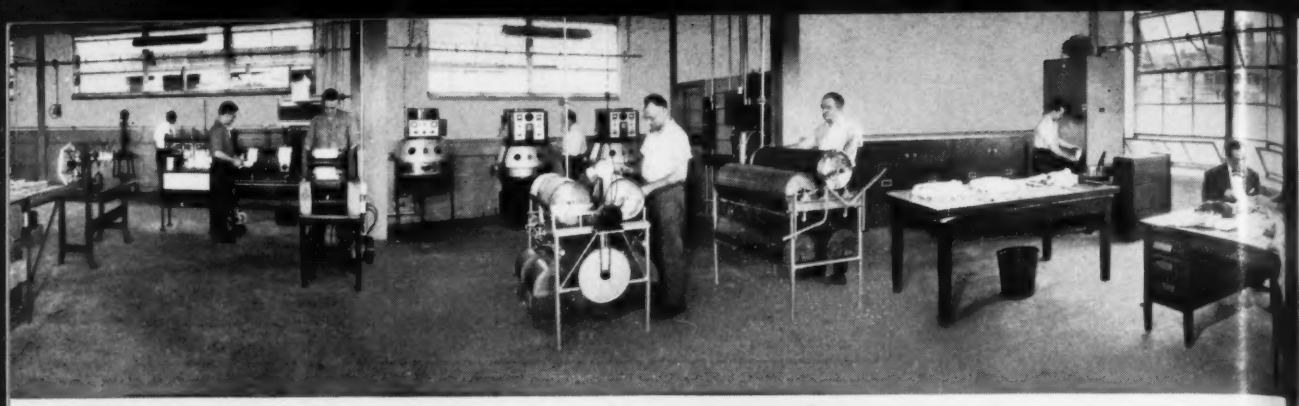

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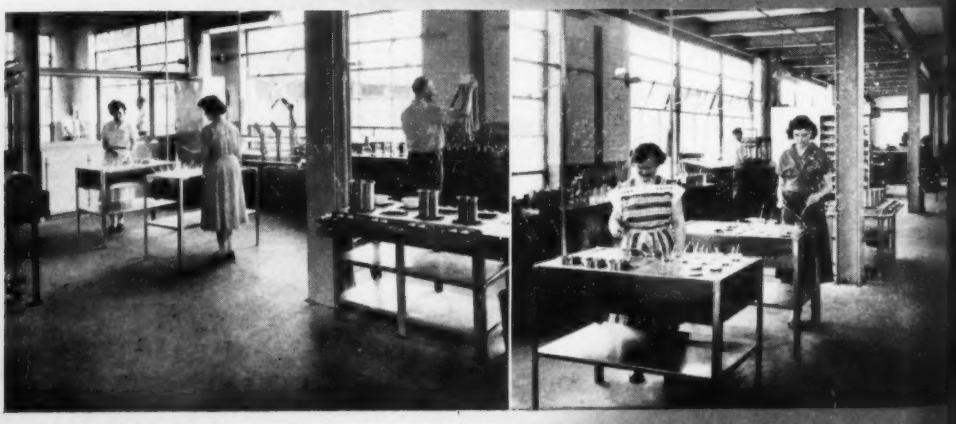


Annual Processing Review Number

AMERICAN

DYESTUFF REPORTER

VOLUME 40 | DECEMBER 10, 1951 | NUMBER 25

Alphabetical List of NEW PRODUCTS

Developed Since November, 1950

DYESTUFFS AND PIGMENTS • TEXTILE CHEMICALS EQUIPMENT

WITH the cooperation of manufacturers of dyestuffs, textile chemicals, and wet processing and laboratory equipment, we have prepared the accompanying list of products which, it is understood, have been placed on the market or further developed since November, 1950. The list of products has been subdivided according to the classifications mentioned and the individual products are listed in alphabetical order (except for equipment). The name of the manufacturer, in an abbreviated form, appears directly below the name of the product. In many cases the abbreviated name of the manufacturer will immediately indicate to the reader the full name of the company. However, below we have listed alphabetically the key name of the manufacturer together with the complete firm name and address.

We have tried to make this list as complete and accurate as possible but there may be some unintentional omissions or errors. If so, we shall be pleased to have such matters brought to our attention immediately. We have depended upon the manufacturers to supply us with a complete list of their new products together with information concerning them. The properties claimed for these products are those claimed by the manufacturers. The information which we publish is necessarily in a brief form inasmuch as lack of space prohibits the publication of complete details concerning any product. We hope, however, that the information as it appears is sufficiently comprehensive to give the reader a specific idea of the properties and intended uses of the product.

KEY TO MANUFACTURERS' NAMES

ALCO—Alco Oil and Chemical Corp, Trenton Ave and William St, Philadelphia 34, Pa

AMALGAMATED—Amalgamated Chemical Corp, Rorer and Ontario Sts, Philadelphia 34, Pa

AMERICAN ANILINE—American Aniline Products, Inc, 50 Union Square, New York 3, N Y

AMERICAN CONDITIONING—American Conditioning House, Inc, 11-17 Melcher Street, Boston 10, Mass

AMERICAN CYANAMID—Industrial Chemicals Division, American Cyanamid Company, 30 Rockefeller Plaza, New York 20, N Y

AMERICAN POLYMER—American Polymer Corporation, 101 Foster Street, Peabody, Mass

ANTARA—Antara Products Division of General Dyestuff Corp, 435 Hudson Street, New York 14, N Y

APEX CHEMICAL—Apex Chemical Co, Inc, 225 West 34th Street, New York 1, N Y

ARKANSAS—Arkansas Company, Inc, P O Box 210, Newark 1, N J

ATCO—Atlantic Chemical Co, Inc, Centredale, R I

BERG—Charles W Berg Laboratories, 1827 North 5th Street, Philadelphia 22, Pa

BERSWORTH—Bersworth Chemical Co, Framingham, Massachusetts
BICK—Bick & Co, Inc, Reading, Pa
BIRCH—Birch Bros, Inc, 32 Kent Street, Somerville 43, Mass
BRYANT—Bryant Chemical Corp, 6 North Street, North Quincy 71, Mass
BURKART-SCHIER—Burkart-Schier Chemical Company, Chattanooga, Tennessee
CALCO—Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey
CARBIDE AND CARBON—Carbide and Carbon Chemicals Division, Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N Y
CATALIN—Catalin Corporation of America, One Park Avenue, New York 16, N Y
CIBA—Ciba Company, Inc, 627 Greenwich Street, New York 14, N Y
COMMONWEALTH—Commonwealth Color & Chemical Co, 3240 Grace Avenue, New York 67, N Y
CONTINENTAL—Continental Chemical Co, 195 Twenty-First Avenue, Paterson, N J
DEXTER—Dexter Chemical Corporation, 819 Edgewater Road, New York 59, N Y
DU PONT—E I du Pont de Nemours & Co, Inc, Wilmington, Del
ECO—Eco Engineering Company, 12 New York Avenue, Newark 1, N J
EMKAY—Emkay Chemical Company, 319-325 Second Street, Elizabeth, N J
ENLEY PRODUCTS COMPANY—254 Pearl St, New York, 38, N Y
FANCOURT—W F Fancourt Co, 516-518 South Delaware Avenue, Philadelphia 47, Pa
FIELDEN—Fielden Instrument Corp, 2920 North 4th Street, Philadelphia 33, Pa
GEIGY—Geigy Company, Inc, 89-91 Barclay Street, New York 8, N Y
GENERAL DYESTUFF—General Dyestuff Corporation, 435 Hudson Street, New York 14, N Y
GESSNER—David Gessner Company, 41 Fremont Street, Worcester 3, Mass
GRINNELL—Grinnell Company, Inc, Providence 1, R I
HALL—The C P Hall Company, 5145 West 67th Street, Chicago 38, Ill
HEYDEN—Heyden Chemical Corp, Garfield, N J
HILTON-DAVIS—The Hilton-Davis Chemical Co, 2235 Langdon Farm Road, Cincinnati 13, Ohio
HOOKER—Hooker Electrochemical Company, Niagara Falls, N Y
HOUGHTON—E F Houghton & Co, 303 West Lehigh Avenue, Philadelphia 33, Pa
INTERCHEMICAL—Interchemical Corporation, Textile Colors Division, Hawthorne, N J
LEEDS & NORTHRUP—Leeds & Northrup Company, 4901 Stenton Ave, Philadelphia 44, Pa
MAC—Mac Chemical Company, 5113 Kingston Pike, Knoxville, Tenn
MAHER—Maher Color & Chemical Company, 355 West Ontario Street, Chicago 10, Ill
MAY—Otto B May, Inc, 198-214 Niagara Street, Newark 5, N J
MONA—Mona Laboratories, Inc, 65-75 East 23rd Street, Paterson 4, N J
MORNINGSTAR, NICOL—Morningstar, Nicol, Inc, 630 West 51st Street, New York 19, N Y
NATIONAL ANILINE—National Aniline Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N Y
NATIONAL MILLING—National Milling & Chemical Co, 4601 Nixon Street, Philadelphia 27, Pa
NATIONAL STARCH—National Starch Products, Inc, 270 Madison Avenue, New York 16, N Y
NOPCO—Nopco Chemical Company, Harrison, N J
NOVA—Nova Chemical Corporation, 147-153 Waverly Place, New York 14, N Y
NUODEX—Nuodex Products Co, Inc, Elizabeth F, N J
NYANZA—Nyanza Color & Chemical Co, Inc, 109 Worth Street, New York 13, N Y
ONYX—Onyx Oil & Chemical Co, Warren & Morris Streets, Jersey City 2, N J
ORGANIC—Organic Chemical Corporation, P O Box 43, Providence 1, R I
PABST—Pabst Sales Company, 221 North LaSalle Street, Chicago 1, Ill
PAISLEY—Paisley Products, Inc, 630 West 51st Street, New York 19, N Y
PFISTER—Pfister Chemical Works, Inc, Ridgefield, N J
PFIZER—Chas Pfizer & Co, Inc, 630 Flushing Avenue, Brooklyn 6, N Y
PHARMA—Pharma Chemical Corp, 175 Fifth Avenue, New York 10, N Y
PHOTOVOLT—Photovolt Corporation, 95 Madison Avenue, New York 16, N Y
PIONEER—Pioneer Chemical Works, Inc, 940 N Delaware Avenue, Philadelphia 23, Pa
QUAKER—Quaker Chemical Products Corp, Conshohocken, Pa
RICHMOND—Richmond Oil, Soap & Chemical Co, 1041-1043 Frankford Ave, Philadelphia 25, Pa
ROHM & HAAS—Rohm & Haas Company, Washington Square, Philadelphia 5, Pa
ROSS—Frank B Ross Co, 6-10 Ash Street, Jersey City 4, N J
ROYCE—Royce Chemical Co, Carlton Hill, N J
SANDOZ—Sandoz Chemical Works, Inc, 61-63 Van Dam Street, New York 13, N J
SCHER—Scher Brothers, 519 Getty Avenue, Clifton, N J
SEYDEL-WOOLLEY—Seydel-Woolley & Company, 749 Rice Street, N W, Atlanta, Ga
STANDARD CHEMICAL—Standard Chemical Products Inc, Hoboken, N J
STANDARD SOAP—Standard Soap Company of Camden, Camden, N J
STEIN, HALL—Stein, Hall & Company, Inc, 285 Madison Avenue, New York, N Y
SYNTHRON—Synthron, Inc, Ryan Avenue, Ashton, R I
TENNESSEE EASTMAN—Tennessee Eastman Company, Division of Eastman Kodak Company, Kingsport, Tenn
TITAN—Titan Chemical Products, Inc, Mill Road & Wayne Street, Jersey City, N J
WARWICK—Warwick Chemical Company Division, Sun Chemical Building, 10-10 44th Avenue, Long Island City 1, N Y
WATSON-PARK—Watson-Park Company, Ballardvale, Mass
WESTON—Weston Electrical Instrument Corporation, 614 Frelinghuysen Ave, Newark 5, N J
WOONSOCKET—Woonsocket Color & Chemical Co, Woonsocket, R I
WYANDOTTE—Wyandotte Chemicals Corporation, Michigan Alkali Division, Wyandotte, Mich

ACID ALIZARINE BROWN RLL
(General Dyestuff)

A straight, acid dyestuff developed primarily for fast-color work on wool but also for use on nylon and silk. It is reportedly characterized by excellent fastness to light on wool even in pale shades, and by good to very good wet fastness. The manufacturer states that since chrome improves the wet fastness of this dye considerably on wool without impairing the shade, it is especially useful in combination with chrome colors. Excellent dischargeability on wool, silk and nylon increases the usefulness of Acid Alizarine Brown RLL, it is stated.

ALGOSOL GOLDEN ORANGE IRR-CF
(General Dyestuff)

The water-soluble leuco ester of the straight anthraquinone vat dyestuff Indanthrene Orange RRT. Like the Indanthrene dyestuff from which it has been derived, this Algosol can either be printed or dyed to give fairly bright, reddish-orange shades of good tintorial value, it is stated. The fastness properties of prints and dyeings of Algosol Golden Orange IRR-CF on all fibers are said to be, generally, very good or excellent, permitting the use of this product on textiles of the best quality.

ALGOSOL GREY IHL-CF
(General Dyestuff)

A water-soluble dyestuff of the leuco-ester type in powder form, said to be especially suitable for dyeing and printing cotton and rayon. GDC states that wherever grey shades with the very best fastness to light are required, such as for draperies and upholstery fabrics, Algosol grey IHL-CF can be employed. They further state that besides excellent (7) fastness to light, this grey gives very good to excellent (4-5) fastness to washing, and excellent (5) fastness to chlorine, making it useful also for table cloths, shirtings and washable dress goods, where fastness to repeated laundering is important.

ALGOSOL RED VIOLET IRRN
(General Dyestuff)

A newly-developed, water-soluble, leuco ester of the straight, indigoid vat dye Indanthrene Red Violet RRNA. For cellulosic fibers, this Algosol is said to find its principal use in printing, where its reported brightness, high tinctorial value and excellent wet fastness are more important than its light fastness which is said to be good (5) for heavy shades and fairly good (4) for light shades. It is also reported advantageous for these fibers where quality of dyeing is paramount, particularly in continuous work but also in jig dyeing. For wool, Algosol Red Violet IRRN is claimed to be the ultimate in fastness properties, reportedly giving dyeings with maximum (8) fastness to light and excellent (5) fastness to washing and fulling. It is therefore recommended by GDC for animal fibers when the best all-round fastness is desired.

ALIZARINE FAST GREY BLN-CF
(General Dyestuff)

A straight, fast-to-light, acid dyestuff, said to be outstanding among similar green-grey colors for wool in its ability to dye well by the monochrome or chromate (meta-chrome) methods of dyeing and especially in its ability to exhaust well onto wool from a neutral solution. The company states that it is also valuable for dyeing wool in all forms by the top-chrome (after-chrome) or chrome-mordant (bottom-chrome) methods. It is furthermore recommended by GDC for dyeing wool as a simple acid dyestuff from an acid bath to give distinctly bluer and brighter shades with the same fastness properties as by chrome dyeing methods.

ALIZARINE SAPPHIRE AR
(National Aniline)

A nondusting, acid blue of the Anthraquinone group. It is said to have excellent solubility, very good level dyeing and good neutral dyeing properties. It also is said to possess good fastness to carbonizing and light and excellent fastness to water, sea water, stoving, acids and rubbing. It is well adapted for use, either as a self shade or in combination with other dyes of similar fastness in the coloring of carpet yarns or for the piece dyeing of ladies dress goods, according to National Aniline.

AMANIL* NAPTHOL AS-KB
(American Aniline)

This latest addition to the Amanil Napthol range is particularly noteworthy for its clarity of shade when coupled with the brighter Fast Red Salts and Bases on cotton and rayon. It is especially recommended by American Aniline for bright, blue toned pinks and full bodied reds with couplings such as Fast Red TR and Ponceau L. Good to very good fastness to light, washing and hot pressing may be expected from these and many other diazo couplings, it is stated.

* Reg U S Pat Off

AMANTHOSOL* BRILLIANT GREEN POWDER
(American Aniline)

This is the stabilized water soluble leuco ester of the parent vat Amanthrene Brilliant Green J. The manufacturer states that in addition to the advantages of storability, etc, which a powder offers over a paste, this new powder product will produce the same high all around fastness ratings associated with the original vat color. Printability on cotton and viscose is said to be very satisfactory and equal to the paste product because of its excellent solubility. It is reported suited to the dyeing of wool by the usual Chrome and Nitrite procedures.

* Reg U S Pat Off

AMANTHOSOL* FLAVONE GC
(American Aniline)

The stabilized water soluble leuco ester of Amanthrene Flavone GC — PR #9. Of Anthraquinone derivation, this brilliant greenish yellow, like its parent color, possesses good light fastness and very good to excellent resistance to washing, bleaching, soda boil and mercerizing, the manufacturer states. Its clear, greenish tone lends itself to use for bright Kelly greens along with Amanthosol Brilliant Green, it is pointed out, and it is applicable to cotton, viscose and wool by the customary dyeing and printing methods.

* Reg U S Pat Off

AMANTHOSOL* ORANGE HR
(American Aniline)

This is the water soluble leuco ester of the vat dyestuff Amanthrene Orange R. Like its parent color, it yields a rich full-toned shade of orange on cotton, viscose, etc, it is pointed out. It may be applied to these fibers by the usual Nitrite method, it is stated, as well as by the Bichrome dyeing and printing procedures. In addition, the product is said to be in great favor for the simplified dyeing of woolen fabrics and yarns to obtain the same good fastness as from the parent color when applied by its more complex dyeing procedure.

* Reg U S Pat Off

AMANTHRENE* BRILLIANT GREEN 2G DOUBLE PASTE
(American Aniline)

A homogeneous brilliant yellowish green of Anthraquinone derivation said to possess all around fastness properties from very good to excellent. Printability is excellent, and, because it is not a blend, this product is well adapted to continuous dyeing procedures, it is stated. It is said to offer an attractive self shade as well as an excellent base for Kelly Greens, etc.

* Reg U S Pat Off

ARIBASE SOLUTIONS
(Interchemical)

A new line of stabilized bases in solution form for use in printing cotton, rayon, and other fabrics. Aribase Solutions, when combined with Interchem® Napthols, reportedly produce brilliant reds, scarlet reds, scarlets, violets, dark blues, and other shades identical in fastness to those obtained with stabilized azoic dyes of the Arigen type.

ARIDYE PIGMENT PADDING COLORS
(Interchemical)

Two new resin-bonded pigment colors specially formulated for dyeing cotton, rayon, acetate, nylon, Orlon, and other fabrics are Aridye Pigment Padding Yellow R and Aridye Pigment Padding Yellow GL. These colors are said to be particularly suitable for producing light and medium shades. They are applied by a simple padding method, after which the fabric is dried and, in some instances, heat cured, it is reported.

ARIGEN® DYES
(Interchemical)

New additions to the line of stabilized azoic dyes for printing cotton, rayon, and other fabrics include Arigen R powder and solution, Arigen Yellow GG powder, Arigen Bordeaux RN powder, and Arigen Blue P powder and solution.

BENZO FAST COPPER BROWN BRL
(General Dyestuff)

A new, straight, noncompetitive, dischargeable, direct dyestuff for the production of fast shades on cotton, linen, rayon and silk. An aftertreatment with copper salt is said to be essential for the development of the normal shade and fastness properties of dyeings of this product.

BIXAMINE* BRILLIANT VIOLET BN CONC 200%
(Bick)

A direct dye recommended by the manufacturer for its excellent color value and brilliancy of shade on cotton and rayon.

Fastness to rubbing, organic acid, alkali, perspiration and sea water is good, but fastness to washing and light is moderate, it is reported. The dyestuff is said to be suitable for urea-formaldehyde resin aftertreatment and acetate effects are left practically white with proper precautions in its use, it is claimed.

* Registered Trade Mark

BIXAMINE* DIAZO ORANGE 2G 200%
(Bick)

A developed dye, which is said to yield, when developed with Beta Naphthol, bright orange shades possessing good fastness properties. It is recommended by Bick for application to raw stock, yarn and piece goods in all types of machines.

In combination with this product desirable shades of brown may be produced which discharge to a white with a neutral discharge printing paste, it is stated.

* Registered Trade Mark

BIXAMINE* FAST BLUE 3GLL
(Bick)

This medium direct blue is said to be of unusual resistance to light. It is stated that it is valuable for fast to light navy shades alone and in combination with Bixamine Fast Blue 2RLL and also as a shading color in the production of mode shades in combination with Bixamine Fast Orange 4GLL and Bixamine Fast Red 6BLL. This dyestuff is also recommended by Bick for urea-formaldehyde resin aftertreatment. In addition to excellent light fastness, Bixamine Fast Blue 3GLL possesses good fastness to mild washing, perspiration, crocking and dry cleaning, the manufacturer states. In multifiber work, Bick cites its use as a shading color in cotton-wool unions. Wool is said to be only slightly stained by it. Viscose rayon dyes considerably heavier than cotton and acetate is left practically white with proper precautions, it is pointed out.

* Registered Trade Mark

BIXAMINE* FAST BLUE 4GLL 150%
(Bick)

This direct dyestuff is reported considerably faster-to-light than the older Bixamine Fast Blue 4GL, as well as being much more suitable for urea-formaldehyde aftertreatment. It is especially recommended by Bick where an unusual fastness to light is required. Fastness to mild washing, perspiration, crocking and dry cleaning are good, it is stated.

In multifiber where Bixamine Fast Blue 4GLL can be used as a shading color in cotton-wool unions, wool is said to be only slightly stained. Viscose rayon dyes considerably heavier than cotton and acetate is left practically white with proper precautions, it is pointed out.

* Registered Trade Mark

BIXAMINE* FAST BLUE 2RLL
(Bick)

This dyestuff is the reddest of Bick's very fast to light direct blues. It reportedly produces brilliant, deep blue shades, is valuable as a shading color in combination with other fast-to-light dyestuffs, and can be recommended for urea-formaldehyde aftertreatments.

In addition to its excellent light fastness Bixamine Fast Blue 2RLL reportedly possesses good fastness to mild washing, perspiration, crocking and dry cleaning.

In multiple-fiber work it can be used as a shading color for the cotton in cotton wool unions, the wool being only slightly stained, it is reported. Viscose rayon dyes somewhat heavier than cotton and acetate effects are left practically white with proper precaution, the manufacturer states.

* Registered Trade Mark

BIXAMINE* FAST BORDEAUX BLL
(Bick)

A bluish direct red, reportedly of unusual fastness to light. The shade is said to be only slightly affected by aftertreatment with urea-formaldehyde resin. Moreover the fastness to washing is considerably increased by this aftertreatment, it is reported.

Level-dyeing Bixamine Fast Bordeaux BLL is recommended by Bick as a self shade as well as a shading color for the dyeing of all fabrics where fastness-to-light and resin aftertreatments are chief requisites. In union fabrics the animal fiber is said to be tinted much lighter than the cotton; acetate effects remain white. Nylon is slightly stained and rayon dyes slightly heavier than cotton, it is stated.

* Registered Trade Mark

BIXAMINE* FAST BROWN 8RLL
(Bick)

A new addition to the Bixamine Fast Browns, the outstanding feature of which is its very good fastness to light. It is recommended by the manufacturer for application to cotton and rayon either as a self color or as a shading color for light-fast mode shades on such fabrics as curtains, draperies and upholstery material. The red cast of this dyestuff is said to eliminate the necessity of a red shading component.

* Registered Trade Mark

BIXAMINE* FAST ORANGE 4GLL
(Bick)

A direct dye, reportedly characterized by excellent fastness to light, rubbing and mercerization, good fastness to water, sea water, washing, perspiration and hot pressing. Solubility and level dyeing properties also are said to be excellent, indicating its use in all types of machines. This dyestuff is practically unaffected by copper and Monel metal, it is claimed.

Bixamine Fast Orange 4GLL reportedly possesses excellent dischargeability with hydrosulfite and is therefore claimed to be a suitable product for the printing trade. It is recommended by the manufacturer for cotton and rayon both as a self shade and in combination with other fast-to-light dyestuffs for the production of a wide range of shades.

Acetate effects are said to be left unstained. The dyestuff has slight affinity for animal fibers and white effects can be obtained in a slightly alkaline soap bath, it is stated.

* Registered Trade Mark

BIXAMINE* FAST RED 9BL
(Bick)

This red is slightly bluer in shade than Bixamine Fast Red 8BL, but reportedly possesses better fastness to washing and dry cleaning. Fastness to washing and perspiration is said to be good, and the color dischargeable to a clear white with both alkaline and neutral discharge paste.

As a union dye, this product is said to stain wool very lightly. With its use, viscose rayon reportedly is dyed the same shade as cotton.

* Registered Trade Mark

BIXAMINE* FAST RED 6BLL
(Bick)

A direct red, reportedly of outstanding fastness to light, good solubility and good fastness to mild washing, perspiration, crocking and dry cleaning. It is said to level well and exhaust rapidly. Suitable for aftertreatment with urea-formaldehyde resins, it also readily discharges to a pure white, it is stated.

Bixamine Fast Red 6BLL is cited by Bick as a good color for shading cotton in cotton-wool unions, dyeing the wool much weaker than the cotton; rayon is said to be dyed somewhat heavier than cotton. Acetate effects remain unstained if proper care is used, it is pointed out.

* Registered Trade Mark

BIXAMINE* FAST YELLOW RLSW (PR 54)
(Bick)

This is reported as a fast-to-light direct dyestuff that produces a clear reddish tone of yellow on vegetable fibers. It is said to be readily soluble and level dyeing in all types of machines.

It is recommended by Bick for union dyeing of cotton and rayon and in cross-dyeing where silk and acetate effects are to be reserved.

* Registered Trade Mark

BRILLIANT ALIZARINE MILLING BLUE FGL Pat
(Sandoz)

This color is reported by the producer to be one of the outstanding developments of their Research Laboratories in that they have now combined in this product the excellent fastness to light of the Brilliant Alizarine Milling Blue BL with the extreme fastness to fulling and other wet fastness properties of their Brilliant Alizarine Milling Blue G. The new product is slightly brighter, though redder than the former Blue G brand and slightly brighter and much greener than the Blue BL type. When dyed Acid the new Blue is said to dye and level to about the same degree as Brilliant Alizarine Milling Blue BL, whereas in Neutral Dyeing the exhaustion is reported faster and more complete. The manufacturer reports that the new product is somewhat faster to light and definitely faster to fulling than the older Brilliant Alizarine Milling Blue brands. Like its two predecessors this new color is reported to have excellent fastness to carbonizing and perspiration. It is also reported to be a most outstanding color for the dyeing of nylon, exceeding in fastness to light, washing and perspiration all other Blues in their line.

BRILLIANT ALIZARINE SKY BLUE 2GS Pat ——XYLENE FAST BLUE P2G
(Sandoz)

A new homogeneous color that is said to have similar dyeing properties to the various colors in the "P" Group, namely, Xylene Fast Blue PR, Red P and Yellow P. The new product has a very bright greenish hue which, when combined with the older Sky Blue BS type, will produce a range of bright Blues. It also is said to have sufficient fastness properties to permit its use for brightening Chrome dyeings.

Fastness to light is said to be excellent and according to the manufacturer, a full point faster to light dyed Acid than Brilliant Alizarine Sky Blue BS. Fastness to washing and sea water are reported to be very good and perspiration excellent.

The manufacturer states that the color has unusual fastness to light, washing and perspiration on nylon and silk. They state further that the brilliant shade and good fastness properties recommend its use for the dyeing of hosiery and knitting yarns, and as a component or shading element for chrome-dyed piece goods or worsted tops. Further, its excellent neutral dyeing properties and good light-fastness will be of great interest for the dyeing of wool or mohair in upholstery or decorative fabrics. Its excellent fastness to light, when dyed Neutral, is said to be a distinct advantage over many Anthraquinone-type blues.

CALCO NAPHTHOSOL SWF
(Calco)

An improved type said to possess superior solubility and stability and to be particularly suitable for pressure dyeing and padding.

CALCOLOID BLUE BLNS DOUBLE PASTE
(Calco)

A new nonspecking vat blue especially recommended by the manufacturers for pigment padding on cotton or rayon piece goods.

CALCONYL VIOLET B POWDER
(Calco)

A new blue shade stabilized azoic violet recommended by the manufacturers for printing bright and economical full shades.

CALCOPHENYL BLACK BASE
(Calco)

An oxidation black recommended by the manufacturers for fast blacks on cotton, viscose and acetate, and mixed fibers.

CAPRACYL** BROWN RD
(Du Pont)

This metalized azo color has been added to the group of neutral dyeing colors developed by Du Pont. It ranges in shade from a violet-brown to a reddish-brown, depending on the concentration used. Other neutral dyeing colors of this type for wool and nylon, recently announced by Du Pont, were formerly known by the name, Neutracyl. Capracyl Brown RD is an important addition to this group of colors because of its very good light and wet fastness properties, it is stated. Its saturation affinity on nylon is reported to be much superior to that of the direct or acid color types and it is predicted that this product will find extensive use as a base for blacks or browns and also as a shading component in many combinations for dyeing wool or nylon in the form of stock, top or tow. It is recommended that a small amount of ammonium acetate be added to the dyebath to assist in color exhaustion.

Capracyl Brown RD reportedly exhibits

** Trade Mark

good buildup on nylon and is said to be much superior in fastness to light and washing than the Acetamine, direct or acid color types. It also is said to have very good resistance to perspiration, sea salt water, hot moist pressing and dry cleaning. Various resin and Zelan* treatments, sublimation, crocking and gas-fume fading tests are said to have had a negligible effect on shade.

Application of this product to the different forms of wool is said to result in fastness comparable to that of the Chromacyl dyes; the only exception being a slight superiority to light displayed by this new product. Capracyl Brown RD is said to possess good neutral affinity for wool, thus eliminating possible damage to the fibers by high concentrations of sulfuric acid. Effect fibers attached to wool show acetate, cotton and rayon to be noticeably stained while a light dyeing is produced on silk, it is reported. The product is recommended by Du Pont because of it outstanding light and wet fastness, for use in the stock and top dyeing of nylon or wool to be subsequently made into fabrics for shirtings, suitings, automotive top material, work clothing and transportation fabrics.

* Registered Trade Mark

CAPRACYL** RED BB

(Du Pont)

This metalized azo color is said to possess desirable application and fastness characteristics and to enable the production of a range of bright bluish-red shades on both nylon and wool. When applied to these two fibers from neutral dyebaths it reportedly exhibits good absorption and its high saturation level allows good buildup at all depths of shade. Capracyl Red BB is said to be useful as a shading component when combined with a yellow and a blue of the same type in the formulation of fast gray shades on nylon automotive upholstery fabrics. A small addition of ammonium acetate to the dyebath toward the end of the dyeing period is recommended by Du Pont as an assistant in obtaining maximum color value.

Although this product does not equal the high light fastness displayed by other members of its type, it is said to be superior to most reds of the acid, direct and Chromacyl* classes. Good resistance to washing, perspiration, dry cleaning, sea salt water and hot moist pressing are other important properties cited by the manufacturer. In addition, it is reported good to the effects of Zelan* and resin finishing treatments, crocking and sublimation. Aftertreatment of this product in diazotizing and developing baths has a negligible effect on its shade, it is pointed out.

With a reported good neutral affinity for wool, the Capracyl dyes possess a distinct advantage in application properties over the acid and Chromacyl types though the fastness of Capracyl Red BB is quite similar. The possibility of damage to the fibers through the use of high concentrations of sulfuric acid is eliminated. In the dyeing of materials containing different effect fibers it reportedly stains acetate a trace, cotton appreciably, rayon and silk very much. Shade brightness combined with good general fastness make Capracyl Red BB of value for the neutral dyeing of nylon or wool to be used in suitings, shirtings, athletic wear, automotive and transportation fabrics, the manufacturer states.

** Trade Mark

* Registered Trade Mark

CARBANTHRENE OLIVE GREEN B DOUBLE PASTE

(National Aniline)

An Anthraquinone vat dye that is said to produce, on cotton or rayon, moderately bright olive green shades of the highest light fastness. In addition, it reportedly possesses good fastness to chlorine, very good fastness to washing, boiling soap, boiling soda, perspiration, water and sea water and excellent fastness to rubbing. It is recommended by the manufacturer for coloring upholstery fabrics, curtains, high grade embroidery yarns and, in deep shades, for awnings.

CARBANTHRENE RED FBB DOUBLE PASTE

(National Aniline)

A red, vat dye of the Anthraquinone group which is said to reduce readily to a dull brown leuco. In the reduced state it is said to be well adapted for the machine dyeing of cotton in raw stock, yarn or piece; it can also be applied by the pigment padding method to yarn or piece goods, and is suitable for printing, the manufacturer states. It reportedly possesses good fastness to mercerizing; very good fastness to acids, alkalies, rubbing, chlorine, peroxide and light and excellent fastness to washing, boiling soap or soda, water, sea water, cross dyeing, stoving and perspiration.

CELANTHRENE* FAST BLUE GSS

(Du Pont)

A water-soluble acetate dye reportedly having good affinity for both acetate rayon and nylon. It is said to yield bright greenish-blue shades on both fibers, show particularly good light fastness and level dyeing properties on nylon and exhibit better wash fastness than the dispersed types of acetate blues. Although not rated high in its resistance to gas-fume fading on acetate, it is unique in that it goes green instead of red. This new product is said to be a valuable component in gray, tan, brown and green combinations with dispersed acetate dyes in the presence of soap and also with water-soluble types on nylon where acetic acid is required in the dyebath. It is stated that it can be used as a neutral dyeing color on nylon as well.

This dye is recommended by Du Pont for use on fabrics requiring good light and wash fastness, such as dress goods, sportswear, knitting yarns, and in the production of a variety of shades for automotive upholstery materials.

* Registered Trade Mark

CELANTHRENE* VIOLET BGF

(Du Pont)

A direct dyeing acetate color for the production of violet shades. It reportedly possesses outstanding resistance to gas-fume fading on acetate rayon and nylon, exhibits very good fastness to light, perspiration, crocking, dry cleaning, and hot moist pressing and shows good fastness to washing at 105°F and salt water. The fastness on nylon is said to be slightly lower than that on acetate. Du Pont recommends this product for use on dress goods, linings, curtains, draperies and similar articles that require very good general fastness.

Celanthrene Violet BGF reportedly can be applied easily in the customary types of dyeing equipment, disperses rapidly and thoroughly and incorporates well with printing pastes to produce evenly penetrated, speck-free prints that exhibit good resistance to sublimation. It is stated that this color is not dischargeable; and that it stains cotton a trace, rayon noticeably and silk and wool very much.

* Registered Trade Mark

CELLITON DISCHARGE BLUE 5GA

(General Dyestuff)

A dyestuff for acetate (estron) and nylon, which dyes bright greenish-blue shades and is reported to have the unique property, among bright greenish blues, of being dischargeable to an excellent white. Thus, by its use, either alone or shaded to the yellow side with Celliton Yellow 5GA, there is made available for discharge a range of shades from turquoise, aquamarine, and peacock blue through aqua green, nile green and primitive green all the way to chartreuse, with brightness not previously attainable, according to GDC.

CHROMOLAN RED 3RB

(National Aniline)

A nondusting premetallized acid red

for wool. It is said to produce soft pink to red shades of good fastness to domestic washing, mill washing and scouring, perspiration and hot pressing and excellent fastness to crocking, steaming, acids, alkalies, water, sea water and stoving.

Chromolan Red 3RB is well suited for piece dyeing of ladies dress goods as well as for dyeing carpet yarns and knitting yarns for bathing suits, sweaters and hosiery, according to National Aniline.

CIBACETE PRINTING BLUE 2B
(Ciba)

Especally recommended by Ciba for printing acetate rayon because of excellent dispersibility and fastness to sublimation. Cibacete Printing Blue 2B is also said to be economical as a base color for blacks, producing deep bloomy shades with good fastness properties.

CIBACETE RED B
(Ciba)

This new and highly-dispersible acetate color produces a utility shade of red between Cibacete Red YNB Ex Conc and Cibacete Rubine BS, according to Ciba. Because of its good color pickup over a wide temperature range it is recommended by the manufacturer for both jig and beck dyeing and also for application printing because of its good dispersibility and resistance to sublimation.

CIBACETE TURQUOISE BLUE G
(Ciba)

A bright blue green for acetate rayon that is said to be essential for dyeing the brightest shades of green.

Ciba recommends it as a component in fast to light grey mixtures, because of its excellent light fastness and because it turns greener in artificial light.

CIBANONE BRILLIANT PINK 2R PASTE
(Ciba)

This new dyestuff reportedly yields pure shades of pink with excellent fastness to light, washing, chlorine and peroxide bleaching. It may be applied by the pigment pad jig method or on package machines as well as by the usual yarn dyeing methods according to the manufacturer. It is recommended by Ciba to be dyed at a low temperature and is also said to be well adapted for printing.

CIBANONE BROWN RV DOUBLE PASTE
(Ciba)

A reddish brown said to be of excellent all-around fastness. The manufacturer states that it is particularly suited for piece dyeing of goods which must withstand exposure to weather. Reportedly, it may be applied by the pigment pad method or in package machines. Dyeing can be carried out at low or medium temperatures, it is stated.

CIBANONE GOLDEN ORANGE 3G PASTE
(Ciba)

A clear yellow shade of orange said to possess good light fastness and excellent wet fastness. It reportedly can be used as a self shade or in combinations, particularly with Cibanone Browns.

CIBANONE RED FBB DOUBLE PASTE
(Ciba)

A bright shade of red with a bluish cast. It is said to be suitable as a self shade or in combinations, having excellent fastness to light and wet treatments and reportedly may be applied by the pigment pad method or in package machines.

CUPROFIX RUBINE FBL
(Sandoz)

This new product is recommended by the producer as a color of outstanding fastness for either direct dyeing or after-treatment with Cuprofix, urea-formaldehyde or melamine. The new color is considerably bluer and brighter than Cuprofix Rubine BL or Resofix Rubine BLN. In fastness to light Cuprofix Rubine FBL is rated one-half to one full point better than these older types. When after-treated with urea-formaldehyde on spun rayon, a 1% dyeing is rated by the manufacturer (7), for light fastness. The new product is reported to have very good fastness to washing at 160°F when after-treated with Cuprofix or by the combined Cuprofix resin method. Likewise, the product is said to possess excellent fastness to perspiration and crocking. Celanese and nylon are left white.

DIAZAMINE FAST YELLOW GL*
(Sandoz)

According to the manufacturer, this new product has very much better fastness to light than other developed yellows in the Sandoz line. It is considerably redder than Diazamine Fast Yellow 3GL when developed with Developer Z. In addition to its improved fastness to light, the product is reported to have excellent fastness to washing, perspiration, crocking and hot-wet pressing.

The color is said to give excellent discharges both neutral and alkaline and leave acetate white. It reportedly dyes a solid shade on cotton viscose mixtures and has good equalizing power on Barre viscose.

* Pat applied for

DIAZO BROWN RA-CF
(General Dyestuff)

A straight, substantive dyestuff for cotton, rayon, linen and silk dyeings, which upon development with Developer AMS-CF or Beta-Naphtol reportedly gives very reddish, bright browns possessing good (3) fastness to washing on cotton, good to very good (3-4) fastness to washing on rayon, fairly good (4) fastness to light on cotton and good (5) fastness to light on rayon. The unique property of the developed dyeings of this particular brown that distinguishes it from other developed reddish browns and sulfur browns is very good (4) dischargeability with a neutral Rongalite discharge paste, the company states.

DIPYRAZO BLACK OB CONC
(Pharma)

A deep black shade for cotton and rayon, which reportedly may be used direct, developed with Beta-naphthol, Developer Z and MTD, or after-treated with formaldehyde. The product shows its best fastness when developed with Beta-naphthol or Developer Z, according to Pharma, and is said to have very good wash fastness with excellent perspiration and salt water fastness. The soft water fastness is very good, it is reported, and the light fastness rating is approximately L4 in medium shades. The discharges are slightly stained in heavy shades; however, in light to medium shades the product is dischargeable, it is stated. Reportedly, it leaves acetate white, while nylon, silk and wool are slightly stained.

DIRECT FAST SCARLET 4GS
(Pharma)

A very bright, bluish shade of scarlet for rayon and cotton. It is reported that this product may be printed on rayon. It is said to have slightly yellowish discharges both on cotton and rayon; the wet fastness properties on rayon are good. The light fastness is reported fair, rating approximately L2. It is said to leave acetate white, though silk, wool and nylon are slightly stained.

DIRECT FAST YELLOW 5G
(Pharma)

This is a direct, substantive color for cotton and rayon that is said to leave acetate, nylon, silk and wool white, and to give a white neutral discharge and a very slightly yellowish alkaline discharge. When combined with blue, it reportedly gives bright, clear greens. The wet fastness properties are excellent and no staining whatsoever of white fibers occurs, according to Pharma. The light fastness is said to be very good. The product

may be after-treated with urea-formaldehyde resins.

DU PONT ANTHRAQUINONE VIOLET A
(Du Pont)

This acid dye is reported to be applicable to both wool and nylon and to exhibit bright, reddish-violet shades on either fiber. The shade and light fastness cannot be equaled with mixtures of other Du Pont dyes it is stated. Dyeings made with Du Pont Anthraquinone Violet A appear redder under artificial light and show a monotone fade when exposed in the Fade-Ometer or to sunlight under glass. On wool, the fastness to crocking and hot moist pressing is said to be very good while the shade change is apreciably weaker in almost all of the wet processing tests. In addition it is said to have very good fastness to both AATCC No. 1 and No. 2 washings, dry cleaning and hot moist pressing when applied on nylon. This product is reported to be suitable for dyeing nylon in any form and for dyeing wool where only moderate resistance to washing is essential. Also of importance is its value as a shading element for increasing brightness in combinations.

Du Pont Anthraquinone Violet A reportedly has excellent hot solubility and can be readily dissolved even after cooling. It is stated to be level dyeing, to have good absorption and to possess very good affinity for the two fibers. A slight shade dullness is noticeable from the effects of brass and iron dyeing equipment. A redder and duller change in shade results from heat during drying which is not permanent; the original shade returns on cooling, it is pointed out. Du Pont Anthraquinone Violet A is not recommended for discharge on nylon. When effect fibers are present in the dyebath, this product reportedly stains cotton and rayon a trace, stains acetate noticeably to appreciably and stains silk very much.

EASTMAN FAST BLUE GLF CONCENTRATED
(Tennessee Eastman)

This is claimed to be the first blue acetate dyestuff possessing outstanding fastness to both gas and light. It also is said to possess very good fastness to perspiration, sublimation, hot-pressing, urea-formaldehyde resins, and dry cleaning.

Eastman Fast Blue GLF Concentrated is recommended by the manufacturer for men's suitings, dress goods, upholstery, draperies, and wherever good gas and light fastness is desired. It is said to be extremely valuable when used in combination with Eastman Fast Yellow 4RLF, Eastman Fast Yellow GLF, Eastman Fast Yellow 8GLF, and Eastone Fast Red GLF to produce pastel to deep shades having outstanding gas and light fastness. Its dyeing properties are said to be very good in the range of 180-200° F. The manufacturer suggests that it be dyed with 1 per cent sodium meta phosphate on the weight of the fabric. To obtain the best tinctorial value and exhaustion properties ¼ per cent to ½ per cent (on weight of material) they recommend the addition of mono sodium phosphate to the dye bath. Increasing the pH of the dye bath above 7.5 will retard the penetration and exhaustion, it is stated, and anionic rather than nonionic detergents and wetting or leveling agents should be used. The color reportedly may be stripped from dyed pieces with 5 per cent sodium chloride and 5 per cent formic acid (based on weight of material). It is not dischargeable.

This dyestuff is also claimed to be very useful on Dacron, polyester fibers and Dynel.

EASTMAN FAST VIOLET 3R-GLF
(Tennessee Eastman)

This dye is said to be the first gas fast acetate violet possessing outstanding fastness to light, sublimation, and perspiration. It is said to be unique among the acetate violets in that there is no appreciable change in shade on curing when treated with urea-formaldehyde resin.

Eastman Fast Violet 3R-GLF is highly recommended by the manufacturer wherever excellent fastness to gas and light are desirable. It is said to be especially well suited for the production of reddish violet shades and most suitable as a red element in the matching of gray, taupe, tan and beige shades. It reportedly has excellent penetration and build up properties in the range of 180-200° F. The color may be stripped from dyed pieces with sodium chlorite and formic acid, it is stated. It is not dischargeable.

EASTMAN FAST YELLOW 8GLF
(Tennessee Eastman)

A highly dispersed bright greenish yellow reportedly having excellent sublimation fastness. Its light fastness is said to be outstanding for a brilliant yellow in addition to having very good fastness to gas, washing, perspiration, and hot pressing.

Eastman Fast Yellow 8GLF is reported valuable in making brilliant yellow, chartreuse, and kelly green shades which must be fast to light, gas, and sublimation or migration. It is said to have excellent dyeing and exhaustion properties in the range of 160-180° F. The manufacturer states that it should not be dyed above a pH of 8; and further, that the color may be stripped from dyed pieces with sodium chloride and formic acid. It can be discharged but is not recommended as an Eastone dischargeable color.

FAST GARNET GC BASE
(May)

A new base which is said to offer very desirable shades of garnet when coupled with various naphthols.

FASTUSOL BLUE L5R
(General Dyestuff)

A valuable addition to GDC's line of Fastusol dyestuffs for the production of fast-to-light shades on cotton or rayon. It is a straight substantive dyestuff, which reportedly produces very reddish shades of blue of moderate brightness. The outstanding property of Fastusol Blue L5R is its fastness to light, which is said to be very good (6) in full shades on cotton and excellent to maximum (7-8) on rayon.

FASTUSOL BROWN 3RL-CF
(General Dyestuff)

A straight dyestuff of the Fastusol type. It is recommended by the manufacturer primarily for dyeing cotton, rayon and other cellulosic fibers, on which it is said to produce bright, very reddish shades of brown with very good (6) fastness to light for medium shades on cotton and maximum (8) fastness on rayon. GDC points to a particular advantage of this brown over other fast-to-light browns of similar shade: it is relatively as fast in the Fade-Ometer as in sunlight.

HILTONAPHTHOL SOLUTIONS
(Hilton-Davis)

HILTONAPHTHOL AS SOLUTION
HILTONAPHTHOL AS-SW SOLUTION
HILTONAPHTHOL AS-G SOLUTION
HILTONAPHTHOL AS-D SOLUTION
HILTONAPHTHOL AS-PH SOLUTION
HILTONAPHTHOL AS-OL SOLUTION
HILTONAPHTHOL AS-KB SOLUTION
HILTONAPHTHOL AS-HB SOLUTION

This line of products represents concentrated solutions of the corresponding naphthols. The use of these solutions is said to eliminate the necessity of dissolving the dry naphthols and the use of alcohol, caustic, and straining.

The stability, clarity, and uniformity of these products are excellent, according to the manufacturer.

HILTOSAL FAST ORANGE RD SALT
(Hilton-Davis)

This new addition to the Hilton-Davis line of fast color salts reportedly makes possible the dyeing of very bright shades

of orange of good to excellent light fastness when coupled to most naphthols.

INTERCHEM ACETATE DYES
(Interchemical)

Two new highly dispersed acetate dyes said to possess good all-round fastness are Interchem ® Acetate Yellow RLF-40 and Interchem Acetate Yellow HDLF-40. These are recommended by Interchemical for both dyeing and printing acetate rayon and nylon for men's wear, sportswear, and high-quality women's wear fabrics.

MAYVAT BRIGHT YELLOW 3G PASTE
MAYVAT GOLDEN YELLOW GK DOUBLE PASTE
MAYVAT FLAVONE GC PASTE
MAYVAT ORANGE R PASTE
MAYVAT PINK FF PASTE
MAYVAT SCARLET 2B PASTE
MAYVAT SCARLET 2G PASTE
MAYVAT DEEP BLUE BO PASTE
MAYVAT OLIVE GREEN B DOUBLE PASTE
MAYVAT OLIVE GREEN 3B DOUBLE PASTE
MAYVAT OLIVE T PASTE
MAYVAT BROWN DRM PASTE
MAYVAT DEEP BROWN MM PASTE
MAYVAT KHAKI 2G DOUBLE PASTE
MAYVAT PRINTING BROWN RR PASTE
MAYVAT YELLOW BROWN RC DOUBLE PASTE
MAYVAT GREY 2RT PASTE
MAYVAT BLACK 2B PASTE
(May)

These are additions to the line of highly dispersed and grit-free line of Vat Dyestuffs offered by Otto B May, Inc.

MAYVAT ORANGE R DOUBLE POWDER
MAYVAT PINK FF DOUBLE POWDER
MAYVAT SCARLET 2G DOUBLE POWDER
MAYVAT OLIVE AR DOUBLE POWDER
MAYVAT OLIVE T DOUBLE POWDER
MAYVAT YELLOW BROWN RC DOUBLE POWDER
(May)

These are additions to the line of finely dispersible powders offered by Otto B May, Inc.

NAPHTHOL AS-KB
(Pfister)

A new Naphthol said to be of excellent dischargeability, giving shades similar to those obtained with Naphthol AS-BS, but of greatly increased light fastness. Colors obtained with this Naphthol are said to show a brighter blue tint than those derived from any other. Naphthol AS-KB coupled with Fast Scarlet R reportedly produces a bluish pink possessing exceptional light fastness properties much in demand among textile printers.

NATIONAL CARBANTHRENE OLIVE T PASTE
(National Aniline)

A vat dye of the Anthraquinone group producing olive-gray shades on cotton or rayon. It is said to be applicable by the pad-jig method or by the reduced bath method either in open tubs or in pressure machines.

Dyeings so produced are reportedly characterized by very good fastness to acids, alkalies, boiling soap, chlorine, rubbing and hot pressing and excellent fastness to stoving, cross dyeing, mercerizing, perspiration, water, washing and light.

NEOLAN BLUE 3R
(Ciba)

A new dyestuff said to possess excellent all-around fastness properties. Reportedly, it levels well, exhibits good stability to prolonged boiling and is unaffected by carbonizing or decatizing. It is said to be dischargeable to a good white and to be unaffected by acid and alkali spotting. Acetate viscose and cotton effects are unstained by it, it is stated.

NEOLAN FLAVINE GFE
(Ciba)

The brightest greenish-yellow of the Neolan range, this new color is recommended by the manufacturer as a self color or as a component color for bright shades. It is said to be an excellent level dyeing color and to produce almost the same color yield when applied from a strong or weak sulfuric acid bath.

NIAGARA FAST COPPER BLUE EG
(National Aniline)

This product is a non-dusting, direct dye for cotton or rayon. It reportedly produces moderately bright, reddish-blue shades which, on after-treatment with copper, become considerably greener in shade; they also are said to acquire considerably better fastness in many other respects, which is particularly noticeable on rayon. Such dyeings are said to exhibit very good fastness to hot pressing, rubbing and light and excellent fastness to acids, alkalies, water, sea water and perspiration and to discharge to a good white, all of which render it particularly valuable for coloring snow and ski suits.

NOVALENES
(Nova)

(Novalenes are diazotized stable color bases in solution which the textile printer can combine with any number of a full range of Nova Naphthols to get the various shades he desires. These solution mixtures are then added to the print paste and printed, acid aged and otherwise handled like the Novagens. By being able to combine the Novalenes with any one of a number of Naphthols, the printer is assured of greater flexibility.)

These new products are as follows:

NOVALENE BLUE D

A diazotized stable color base which couples with Nova Naphthol AS, Nova Naphthol ASD, Nova Naphthol ASPH, Nova Naphthol ASKB, Nova Naphthol ASSW and Nova Naphthol ASSB to give navy blues and with Nova Naphthol ASDB to give a fast dark brown.

NOVALENE BLUE BB

A diazotized stable color base which gives varying shades of blue with Nova Naphthol AS, Nova Naphthol ASD, Nova Naphthol ASOL, Nova Naphthol ASKB and Nova Naphthol ASE, a green with Nova Naphthol ASGR, and a fast brown with Nova Naphthol ASDB.

NOVALENE RED KB

A diazotized stable color base which gives a yellow with Nova Naphthol ASG, a scarlet with Nova Naphthol ASPH, and varying shades of red with Nova Naphthol AS, Nova Naphthol ASD, Nova Naphthol ASBS and Nova Naphthol ASKB; it also is said to give a pleasing shade of very fast brown with Nova Naphthol ASDB.

These Novalenes will be followed shortly by Novalene Scarlet 2G and others to complete the range.

ORCO LUMO L LIGHT YELLOW
(Organic)

A brilliant greenish yellow pigment that reportedly produces intense fluorescence under ultraviolet light and also good fluorescence under normal daylight. Recommended by Organic for use in the specialty paint trade, for flock printing, in the field of plastic material on cellulose acetate bases, and in the field of celluloid and other thermoplastic artificial materials.

ORCO LUMO L RED NEW
(Organic)

An intense bluish red pigment for producing intense fluorescence under ultraviolet light and good fluorescence in normal daylight. Recommended by the manufacturer for use in the paint trade, flock printing, plastic and thermoplastic materials.

ORCO LUMO LT FIERY RED
(Organic)

The shade of this pigment is a pure fiery red, however, more yellowish as compared with the intense bluish red of Orco Lumo L Red New. This color is said

to be suitable for the manufacture of advertising colors, artists' paints and educational colors and also adaptable for printing inks.

ORCOCHROMATE GREY NLL
(Organic)

A chromate dyestuff especially tailored for use on government shades. Organic reports that its unsurpassed light fastness and very good to excellent all-round fastness ratings make its use a necessity where OG nylon-wool blends are being matched. It is said to be universally adaptable for the dyeing of tops, yarn and piece goods.

ORCOCHROMATE OLIVE 2GL
(Organic)

A dyestuff for use with the standard chromate method. The manufacturer calls it "the key to top results in piece dyeing government shirting nylon blended 108 shade."

ORCOCHROME BRILLIANT RED GSS
(Organic)

Top chrome or chromate—this dyestuff is said to give a self shade of incomparable brilliancy, and to give life to combination shades. It can be successfully dyed on raw stock, yarn, or piece goods, according to the manufacturer with good light fastness and very good all-round fastness. Recommended by Organic especially for the carpet trade, wool stock dyeing, and knit goods.

ORCOCHROME PRINTING ORANGE G
(Organic)

A dyestuff which should be of special interest to both screen and roller printers. It is said to compare most favorably with other chrome printing oranges for general fastness and brightness.

ORCOCHROME PRINTING RED BSL
(Organic)

A chrome printing color adaptable for screen printing and roller printing. It is said to be a color of good general fastness, very bright, slightly bluish in shade, and is recommended by the manufacturer for use either alone or in combination where unusual brilliancy is required.

ORCOSOL DIRECT BLACK R PASTE
(Organic)

A vat black on the green side in a self shade. Due to its outstanding light fastness and excellent general fastness, this dyestuff can be used for shading government olive greens, it is reported. It is said to be suitable for the dyeing of both yarn and piece goods and reduces to a red-violet.

ORCOSOL VAT BRILLIANT SCARLET RK DOUBLE PASTE
(Organic)

A cold-dyeing vat with a Fade-Ometer rating of 7, said to possess very good to excellent all-round fastness properties, and suitable for combination boil and bleach. Possessing a brightness of shade found in few other scarlets, this vat can be used on both cotton and rayon yarn and piece goods, it is reported. Reduces to a red-brown.

ORCOSOL VAT RUBINE GR DOUBLE PASTE
(Organic)

A level dyeing vat said to possess excellent fastness to light, washing, soda-boil, and bleach. Reduces to a red-brown. It is reported suitable for combination boil-offs and bleaches.

ORCOSOL VAT TURQUOISE 3GK DOUBLE PASTE
(Organic)

A cold-dyeing, nicely-leveling vat recommended by the manufacturer for use where brilliancy of tint and extreme light fastness is required. It is said to have good to very good fastness to washing, chlorine, peroxide, soda boil and mercerizing, though it is not suitable for combination boil and bleach. Reduces to a red-brown.

PHARMA CHROME ORANGE 4R
(Pharma)

This product reportedly can be applied by all three chroming methods on wool, the bottom chrome method giving the fullest shade. The product has excellent fastness properties, fair light fastness, and very good milling and fulling fastness, it is stated.

PHARMA CHROME YELLOW R
(Pharma)

This product reportedly may also be applied by all three chroming methods on wool, the top chrome method giving the brightest shade. The product has excellent wet fastness properties, very good milling and fulling fastness, and extremely good light fastness, the manufacturer states.

PHARMALAN YELLOW EL
(Pharma)

A level dyeing chromiferous type for wool, said to be an outstanding number in its group. Light fastness and wet fastness properties are excellent, it is stated.

PHARMAZOIDS
(Pharma)

A complete line of diazotized and stabilized fast color bases, for coupling with naphthols.

PONSOL* YELLOW 5GLL PASTE
(Du Pont)

This vat color produces bright greenish-yellow shades on cotton and viscose-process rayon that are said to be faster to light than other greenish vat yellows available at present. This property is retained when Ponsol Yellow 5GLL Paste is used in combination with other anthraquinone derivative vat colors, such as Ponsol Jade Green, Ponsol Green 2BL and Ponsol Blue BFN, it is stated. This product is said to possess very good resistance to chlorine, crocking, hot moist pressing, washing, and to both cold and salt water spotting. Du Pont recommends it for application to materials intended for use in dress goods, draperies, sportswear and similar articles where good light fastness is the major requirement.

The paste is said to have very good stability in the reduced form at 120° F, showing a negligible effect on the shade and strength after standing for two hours. It can be applied satisfactorily by pigment pad or reduced methods, it is stated.

* Registered Trade Mark

PONSOL* RED RRB PASTE
(Du Pont)

Bluish-red shades possessing good fastness to light and washing are said to be characteristic of this anthraquinone type vat color. The manufacturer states that it can be applied to cotton and viscose-process rayon in the form of rawstock, yarn or piece goods. Good resistance to bleaching with either peroxide or chlorine, combined with light and washing fastness, recommend it for use on towelings, shirtings, suitings, drapery and upholstery materials, sewing thread and related end uses, the manufacturer states. It is of interest in shades ranging from pastel pinks to medium reds and is important as a shading element in the production of tan, brown, salmon and gray shades. Prints in pink and rose shades on drapery fabrics are said to possess good light fastness, showing a monotone fade.

This product reportedly reduces easily to a dark brown vat, oxidizes readily, has good absorption and dyes levelly. Its stability in the reduced form at 120° F is said to remain quite good after standing for two hours. Since metals have a negligible effect on the shade, it can be applied in machines of all types as well as by the Du Pont Pad-Steam Continuous Dyeing Process, it is stated.

* Registered Trade Mark

PONTAMINE* FAST BLUE CPL
(Du Pont)

A direct dyeing, greenish-blue recommended by Du Pont for its good light and washing fastness on viscose rayon when aftertreated with resin finishes. On nonresin finished direct-dyed rayon, it is said to possess very good resistance to light and is slightly inferior in that respect on cotton. Fade-Ometer exposures on rayon are said to show that the original shade is retained (does not go red), although the dyeing goes weaker. The product is of particular interest for dyeing rayon dress goods, sportswear, drapery and upholstery materials and many other end uses where light and wash fastness, after resin treatment, are of utmost importance.

* Registered Trade Mark

PONTAMINE* FAST GRAY 3BL
(Du Pont)

A direct dyeing bright, bluish shade of gray said to be of good fastness to light and washing. It is adaptable for both cotton and viscose-process rayon and is of particular interest for use as a shading color in the production of light-fast shades. Du Pont states that, in addition to the good fastness to light and washing, this product exhibits good resistance to dry cleaning, perspiration, hot moist pressing and dry crocking. It is recommended by them for the dyeing of drapery and upholstery fabrics, dress goods, hosiery and similar materials requiring all-round fastness.

* Registered Trade Mark

PONTAMINE* FAST RED 6BL
(Du Pont)

The direct dye is recommended for use by Du Pont wherever a bluish-red with good fastness to light is indicated. Other properties, such as moderate resistance to perspiration, dry cleaning, washing and hot moist pressing, makes this color suitable for application to fabrics where this degree of fastness is adequate, the manufacturer states. Pontamine Fast Red 6BL is said to be of value as a base for light-fast wines and burgundies and also as a useful shading element in many fast-to-light direct color combinations.

* Registered Trade Mark

PYRAZOL DISCHARGE BROWN G
(Sandoz)

A new addition to Sandoz' fast-to-light line of direct colors. They report the following outstanding properties:

1. Excellent fastness to light dyed Direct, being 1½ points faster than their well known Pyrazol Fast Brown BRL.
2. Absence of shade change by anti-crease treatments.
3. No loss of sunlight fastness when anti-creased.
4. Excellent white discharge, both neutral and alkaline.
5. Excellent neutral discharge on silk.
6. Excellent union on cotton-rayon fabrics.
7. Suitable for rubberizing.

Sandoz states that the color may be used for after-treatment with Cuprofix, which produces a material increase in fastness to washing and perspiration.

PYRAZOL FAST BLUE 3GLN
(Sandoz)

This, the newest addition to Sandoz' line of fast-to-light colors, is reported to be brighter and greener than Pyrazol Fast Blue 4GL and very much faster to light and washing. The color reportedly has excellent drawing power at low temperature which, combined with its excellent fastness to light, makes it of interest for the dyeing of high grade upholstery fabrics and other materials made from a blend of wool and cotton or rayon.

Its fastness to washing is said to be better than any comparable fast to light blue. However, when after-treated with Cuprofix, this fastness is reported still further improved. The color also is said to give an excellent reserve of acetate rayon.

PYRAZOL FAST GREY 2BL
(Sandoz)

This new product is reported by the manufacturer to be one of the fastest to light colors in their line and highly recommended as a shading element for mode shades. It is said to have very good fastness to washing and to give excellent discharges both neutral and alkaline, a property not common with many fast to light greys. It reportedly leaves acetate perfectly white and tints nylon only slightly.

PYRAZOL FAST GREY CAR
(Sandoz)

A new reddish grey direct color, especially recommended by Sandoz for the dyeing of ribbons and other cotton rayon fabrics where it is said to produce an excellent union. It is also reported as giving excellent white discharges both neutral and alkaline. Fastness to light is reported very good and wash fastness good up to 120° F.

PYRAZOL FAST FLAVINE RA
(Sandoz)

This new addition to the Sandoz line of Direct Colors is reported to be of unusual tinctorial value and outstanding for its excellent union dyeing properties on cotton and rayon, as well as its excellent dischargeability either neutral or alkaline.

PYRAZOLINE BLUE NPC
(Pharma)

A direct reddish-blue for cotton and rayon. It is said to dye silk, stain wool and leave acetate white. The general wet fastness properties are reported to be very good and the light fastness excellent. It may be used with urea-formaldehyde resin and can be discharged to a fair white on rayon, the manufacturer states.

PYRAZOLINE VIOLET RC
(Pharma)

A very clear, bright, bluish direct violet for cotton and rayon that reportedly stains silk and wool, leaving nylon and acetate white. It is said to possess very good wash, light, salt- and soft-water fastnesses on rayon and may be after-treated with urea-formaldehyde resins.

SOLANTINE BLUE 3GL
(National Aniline)

Solantine Blue 3GL is a nondusting, direct blue that is said to produce, on cotton or rayon, moderately bright blue shades of very good fastness to light and fair fastness to washing. An after-treatment with National Naccufix alone reportedly increases the wash fastness while maintaining good light fastness. After-treatment with urea-formaldehyde and National Naccufix also increases the wash fastness with but slight decrease in light fastness, it is stated. National Solantine Blue 3GL reportedly yields very good unions on cotton-rayon materials and leaves acetate effects unstained. It discharges well with either neutral or alkaline pastes, according to National Aniline.

SOLANTINE ORANGE 5GC
(National Aniline)

A very level dyeing direct dye that reportedly produces, on cotton or rayon, rather bright, yellowish orange shades of good fastness to light—very good when dyed on rayon; very good fastness to cold water and excellent fastness to alkalies, mercerizing and rubbing. It is said to dye well in hard water (8 degrees hardness), and yield excellent unions on cotton-rayon materials leaving acetate rayon effects practically unstained. It is not suitable for discharge.

SOLANTINE RED 6BLL
(National Aniline)

Solantine Red 6BLL is a nondusting

direct dye said to be of very good fastness to light and mercerizing and excellent fastness to water, sea water and crocking. It reportedly is readily soluble, levels fairly well and produces bluish-red shades on cotton, somewhat yellower shades on rayon, leaving acetate rayon effects unstained. It discharges to an excellent white, it is stated.

SOLOPHENYL YELLOW 2GL
(Geigy)

This bright, greenish shade of yellow is said to have exceptionally good all around fastness—especially to light. It is stated that anticrease resins have only a slight effect on the shade and no effect on the light fastness of this product. It is further stated that Solophenyl Yellow 2GL is ideally suited for use with copper bearing aftertreating agents such as Geigy's G-100, since agents of that type materially improve the wash fastness and only slightly affect the excellent light resistance. The product reportedly reserves acetate rayon very well though it is not recommended for discharge work.

SPECTROLENES
(Hilton-Davis)

SPECTROLENE RED KB SOLUTION
SPECTROLENE RED RC SOLUTION
SPECTROLENE ORANGE HD SOLUTION
SPECTROLENE SCARLET 2G SOLUTION
SPECTROLENE RED B SOLUTION
SPECTROLENE VIOLET B SOLUTION
SPECTROLENE BLUE BB SOLUTION
SPECTROLENE BLUE B SOLUTION

Spectrolene type dyestuffs are fast color bases which have been completely diazotized and then stabilized in such a manner as to prevent coupling with the naphtholates of various naphthols until such time as the stabilizer is broken down. The stabilizer can be broken down and complete coupling obtained by the action of acid such as acetic or formic, either in an acid ager or by wet process in acid-brine mixture, it is stated.

The Spectrolenes according to the manufacturer, have proven useful in printing and dyeing of cotton material and offer good possibilities for any process where a delayed coupling is desired.

UNILON BLUE R
(Pharma)

A bright, clear blue shade for nylon and nylon wool union dyeing. It reportedly has good wash and light fastness and dyes well from a water bath just under the boil. The addition of salt accelerates the exhaust.

UNILON CITRON
(Pharma)

A bright, clear yellow shade for nylon wool union dyeing. It reportedly has good wash and light fastness and dyes well from a water bath just under the boil. The addition of salt accelerates the exhaust.

UNILON ORANGE
(Pharma)

A bright, clear orange shade for nylon and nylon wool union dyeing said to be of good wash and light fastness. It reportedly dyes well from a water bath just under the boil. The addition of salt accelerates the exhaust.

UNILON ROSE
(Pharma)

A bright, clear rose shade for nylon and nylon wool union dyeing said to be of good wash and light fastness. It reportedly dyes well from a water bath just under the boil. The addition of salt accelerates the exhaust.

UNISIL GREEN BFL
(Geigy)

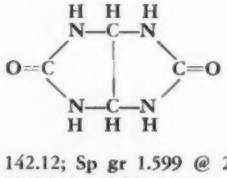
This product is recommended by Geigy for producing bright shades of green on viscose rayon. It is said to be ideally adapted for covering Barre rayon and, on this fiber, to have excellent light resistance and to be one of the few greens available whose shade and light fastness will remain unaffected when anticrease resin finishes are subsequently applied to the fabric.

TEXTILE CHEMICALS

ACCELERATOR R-3S
(Bryant)

An organic catalyst for use with urea and melamine formaldehyde resins. Said to deliver maximum resin fixation plus excellent and extended bath stability.

ACETYLENE DIUREINE
(Carbide and Carbon)



M W 142.12; Sp gr 1.599 @ 20/20°C; decomp 300°C, insoluble in most organic solvents, sol in hot conc HCl and H_2SO_4; sol in water 1.5% by wt. @ 100°C; white crystalline solid.

Chemical Properties: contains two ketone groups and four reactive hydrogens which may be condensed with formaldehyde to yield tetramethylol acetylene diureine. Uses: intermediate in preparation of compounds useful for crease-proofing and shrink-proofing of textile fibers. Availability: research quantities.

ACRYLIC ACID (GLACIAL)
(Carbide and Carbon)

CH_2=CHCOOH MW 72.06; Sp Gr 1.052 @ 20/20°C; B P, 141.9°C (760 mm), 70°C (50 mm), 39°C (10 mm); R I, 1.4236 @ 20°C; V P 3.4 mm Hg @ 20°C; Fr P, 12.1°C; Visc 1.3 cps @ 20°C; Heat of vaporization, 257 B t u/lb @ 1 atm; completely soluble in water; colorless liquid. Chemical properties: polymerizes alone and copolymerizes with other ethylenic monomers. Can be esterified to make acrylic esters useful for preparing polymers and copolymers. Suggested uses: manufacture of thickening agents for natural and synthetic latices used in sizing, waterproofing and crushproofing textile fabrics; preparation of polyacrylic acid, an excellent nylon size. Availability: research quantities for experimental use.

ACRYLIC EMULSIONS
(American Polymer)

Raw materials for producing products for backbinding, filling and finishing. *Data Sheet P-5.*

ACRYLIC SOLUTIONS
(American Polymer)

For use in manufacturing saturating, printing, artificial leather, and vinyl coating products.

ACRYSOL* A-3
(Rohm & Haas)

A solution of polyacrylic acid resin used for sizing nylon tricot yarns. Acrysol A-3 is particularly recommended by the manufacturer for this application because of its uniform viscosity during sizing runs of long duration. High size strength combined with maximum adhesion are said to provide outstanding protection for the yarn. Readily removed from the knitted fabric by scouring.

* Registered Trade Mark

ADREON C
(Bryant)

Claimed to be a highly efficient wetting agent possessing excellent detergency. Works equally well in hard water. A nonionic detergent suggested for most scouring operations.

ALINONE
(Pioneer)

A new synthetic detergent especially developed to scour woolen fabrics at the isoelectric point of the wool that is at a pH of about 4.9. No alkali is to be used in conjunction with this product. It is claimed that it will not only give cleaner goods with increased tensile strength, but will also achieve whiteness superior to any other detergent. It is also recommended by the manufacturers as an assistant in dyeing wherein it helps in obtaining level and bright shades.

ALROSOL CS
(Geigy)

A detergent and wetting agent of the fatty amid type. Available as a clear, amber liquid, 98% active, it is said to be especially valuable as a scouring agent wherever iron is involved, as in boil off machines, etc., because it is a rust inhibitor, thus does not permit iron from equipment to enter processing waters. It is said to be soluble in and an emulsifier for a wide range of organic solvents, stable to most conditions encountered in textile processing liquids, and especially valuable as a dispersant of the calcium soaps encountered during the boil off operations.

AMOLINE SO
(Amalgamated)

A highly concentrated self emulsifiable lubricant and softener which has been designed for use in coning machine troughs. It contains 96% active solids which are a combination of certain esters of vegetable origin and nonionic synthetic condensation products combined with a nonstaining colorless hydrocarbon lubricant. It is a light colored oil and is said to form an unusually stable milk-white emulsion when diluted with cold water. The combination of emulsifiers used is said to be such as to insure stability of the diluted emulsions during the period of use on the coning machines and to insure uniform application and the prevention of migration during subsequent operations. It is said to be particularly suitable for lubricating knitting yarns and is recommended by the manufacturers for use on bleached yarns because of its nonstaining characteristics. It is claimed that yarns treated with this product are easy to condition to the proper desired weight and are properly lubricated to knit without difficulties.

AMPITOL KZ3H
(Dexter)

A new anionic softener substantive to cotton, acetate, viscose rayons and nylon. It is stated that it does not affect the light fastness of direct colors, does not yellow whites, and produces a high degree of softness. This product is compatible with anionic and cationic agents under normal processing conditions. In addition to its use as an effective softener where maximum whiteness or resistance to light fading colors is important, Ampitol KZ3H can be applied as an after-treatment of processed goods without need for rinsing the goods free of anionic agents. Or, it may be applied directly in the dyeing operation and with other substances which might cause trouble with conventional softening agents.

ANHYDRAPENT
(Morningstar, Nicol)

Nonionic surface active agent in powdered form containing virtually 100% active agent. Soluble in any type water and in many types of solvents; solubility increases at accelerated temperatures; comparatively nonhygroscopic and nonfoaming. Said to have high detergency at low temperature in as little as .1% solution. It is stated that it: disperses dyestuffs even in presence of alkali; is stable to acids and alkalies; is not susceptible to precipitation by most metal ions.

ANTAROX A-601
(Antara)

A 100% active liquid nonionic which is a variation of Igepal CO Extra High Conc and is designed to provide textile processors with a nonionic which is soluble and effective at temperatures much higher than with normal nonionic detergents. For example, a 1% aqueous solution of Antarox A-601 is said to remain soluble at temperatures as high as 160°F. It is stated that Antarox A-601 demonstrates the same highly desirable detergent, scouring and lime soap dispersion properties associated with Igepal CO extra High Conc. It is likewise said to be equally stable to acid, alkalies and hard water salts.

ANTAROX G-100
(General Dyestuff)

When added to the spin bath during the manufacture of viscose rayon, acts as a dispersant for the solid materials such as sulfur, zinc sulfide, sodium sulfide, etc, which are present in the spin bath. It is said to prevent clogging of spinnerets and the buildup, on spinning wheels, guides and rollers, of a bulky tacky deposit composed of the solid materials mentioned above. Antarox G-100 also is said to reduce clogging of the outlet lines from the spin bath to the filter and to aid in the cold filtration of sludge coming from the spin bath.

ANTI-WICHER OC-13
(Fancourt)

An emulsion containing a wax penetrant to prevent the capillary attraction or wicking effect of fibers when wet out or submerged in water. This product is said to be used on fabrics previous to rubberizing and also on resin or rubber laminated woven fabrics.

APEX VELVAPEX H-214
(Apex Chemical)

A permanent softening and conditioning agent designed to impart a "wet" type soft hand. Although cation active in nature, the product is said to be compatible with all types of solutions, whether cationic, anionic or nonionic. It is stated that it can be used on whites and pastel shades without discoloration of the fabric. It is recommended by the manufacturers for use at any stage of operation desired with the softness being retained by the treated fabric despite subsequent processing.

AQUATINT BASE
(Maher)

A fluorescent whitening base used to produce brighter, clearer fluorescent shades, as well as pastel shades on wool.

ASTRON D
(Commonwealth)

A complex aryl hydroxide. It is recommended by the manufacturers for the dyeing of Dacron at atmospheric pressure to produce deep shades of navy, brown, maroon, etc and tends to eliminate sublimation of acetate dyestuffs. The pH of the system is immaterial.

ATCO ANTI-STATIC X-30
(Atco)

Destaticizer for nylon, acetate and wool fabrics. Sold in liquid form.

ATCO CSN
(Atco)

A combination of emulsifying agent and detergents with dry cleaning solvents. It is said to be particularly adapted to the boiling off of goods containing wax and grease and for the removal of greige mill oil.

ATCO MERPENE SPECIAL
(Atco)

A highly stable fast-acting wetting agent in highly concentrated caustic baths. It is said to be particularly adapted for mercerizing under all conditions, in high or low temperatures. It is stated that it does not lose its efficiency on standing in caustic.

ATCO RESIN SOFTENER UF
(Atco)

An anionic softener designed specifically for use with urea formaldehyde and melamine resins. It is said to impart a durable, soft hand to resin finishes.

ATCO WATER REPELLENT WM
(Atco)

A one-bath water repellent—mildewproof finishing compound. It contains 26% wax along with 6.6% dihydroxy dichloro diphenylmethane made specifically to pass Government specification JAN-D-504 on OD cotton ducks and other Government fabrics requiring waterproof-mildewproof finish. It is said to give a high spray rate, pass soil burial test and to be very resistant to hydrostatic pressure.

ATCONIL DAC-25
(Atco)

Made specifically for the dispersing and dyeing of acetate colors and is recommended by the manufacturers for no other use. It is said to have controlled dispersive and foaming properties.

ATCONIL PW-35
(Atco)

A combination of nonionic and anionic detergents which has been specifically prepared for the washing of printed textiles. It is said to stand contamination brought into the bath on printed cloth.

ATCOPERM
(Atco)

A resin modifier to be used with urea formaldehyde resins to add durable firmness and increase resistance to abrasion.

ATCOPON SPECIAL
(Atco)

The sodium salt of oleoyl methyl tauride in gel form. It is claimed that it is a powerful synthetic detergent with high foaming properties and much more effectiveness than soap. It is stated that it is excellent for boiling-off cottons, woolens and synthetics. It is recommended by the manufacturers for scouring of piece goods and for print washing. It is said to be stable to acids, alkalis and hard water.

BARISOL BRM
(Dexter)

A dispersing agent, dye assistant and wetting agent based on a potassium salt of an organic phosphate of completely new structure. In the continuous caustic boil-off of cottons, this product is said to clear up the bath and prevent the scum from redepositing on the interstices of the fabric. In kier boiling, it is said to insure even penetration of the liquor without channeling and prevent pectin and gum deposits on the fabric. Barisol BRM is also recommended by the manufacturers as a dye assistant and wetting agent in the vat and sulfur dyeing of cottons. In this application, the product is said to clear up the bath and provide excellent dispersion and penetration of the dyestuffs.

BEL-RO-CIDE 51-F
(Ross)

A mildew retardant applied by means of an aqueous system in the padder or similar equipment. It is claimed that,—if it is applied in such a manner that 0.5%, based on the weight of the fabric, be deposited, the resulting mildew resistance will pass standard specifications such as U. S. Army Corps of Engineers Specification T-1452. A deposit of 2.0%, based on the weight of the fabric, is said to result in mildew resistance that will pass the standard soil burial test. Bel-Ro-Pel RTG and Bel-Ro-Pel DTW water repellents are compatible with Bel-Ro-Cide 51-F. Mixtures of these compounds may be used in any proportion and applied from the same bath.

BEL-RO-LARV 51-E
(Ross)

A moth proofing agent for general use. 1.0% to 1.5%, based on the weight of the fabric, is required for good moth proofing.

BEL-RO-LUB 50U
(Ross)

A textile lubricant on the acid side for all fabrics. It is compatible with Bel-Ro-Pel RTG and Bel-Ro-Pel DTW water repellents and may be applied from the same bath. It reduces the degree of water repellency somewhat but by careful determination of proper concentrations, a desirable result may be obtained.

BEL-RO-LUB 50W
(Ross)

A textile lubricant on the alkaline side for all fabrics.

BEL-RO-PEL DTW
(Ross)

A durable water repellent for fabrics consisting of wool, worsted, and blends of these fibers. It is a single product aqueous emulsion on the acid side and is applied by means of a padder or washer with subsequent drying. The emulsion is said to be extremely stable and its use requires very little attention on the part of the operator. It is claimed that fabrics consisting of all wool or worsted and blends containing 40% or more wool or worsted will give an AATCC Spray Test Rating of 100 originally, 70-80 after 3 dry cleanings, and 70-80 after 3 launderings.

BEL-RO-PEL 50RP
(Ross)

A water repellent for all fabrics and blends. It is applied by means of a solvent system. While it was specifically designed to be used by dry cleaners for reprocessing finished garments, it has many uses on piece goods of special nature.

BEL-RO-PEL RTG
(Ross)

A water repellent for fabrics consisting of cotton, viscose rayon, acetate rayon, nylon, mercerized cotton, mercerized viscose rayon, linen, and blends of any two or more. It is a single product aqueous emulsion on the acid side and is applied by means of a padder with subsequent drying. The emulsion is said to be extremely stable and its use requires very little attention on the part of the operator. It is claimed that very few fabrics treated with this product give a rating of less than 100 on the AATCC Spray Tester and it is said to show remarkable durability to dry cleaning and laundering on many types of fabrics.

BEL-RO-PEL 50S
(Ross)

A combination water repellent and mildew retardant to be applied by means of an aqueous system. It is claimed that, if it is applied in such a manner that 8.5%, based on the weight of the fabric, be deposited, fabrics so treated will not only possess a high degree of water repellency but also a degree of mildew resistance that will pass standard specifications such as U. S. Army Corps of Engineers Specification T-1452.

BEL-RO-PEL 50T
(Ross)

A combination water repellent and mildew retardant to be applied by means of an aqueous system. It is claimed that,

if it is applied in such a manner that 10%, based on the weight of the fabric, be deposited, such fabrics will not only possess a high degree of water repellency but also a degree of mildew resistance that will pass the standard soil burial test.

BEL-RO-PEL WP
(Ross)

A water repellent for all fabrics and blends. It is designed to be used by dry cleaning plants and laundries for reprocessing garments that are normally wet cleaned.

BEL-RO-SET 50XP
(Ross)

A finishing compound used to impart added hand, body, fullness, drape, and full texture to such materials as nylon hosiery, rayon and mixed fiber velvets, corset fabrics, acetate satins, spun rayon and blended fabrics, interlinings, and cotton goods. It is stated that it will produce a full hand on outer fabrics, a durable taffeta finish on fabrics designed for such purpose, a durable "starch finish" on cotton goods. It is compatible with Bel-Ro-Pel RTG and Bel-Ro-Pel DTW Water Repellents and may be applied from the same bath. To be used in concentrations of 2% to 10% depending upon the finish desired. This finish is said to show excellent durability to laundering and dry cleaning.

BEL-RO-SIL 50AL
(Ross)

A wax emulsion on the alkaline side. It may be used as a single finish or in conjunction with other finishes, for example, as a size plasticizer.

BEL-RO-TARD 50AH
(Ross)

A general fire retardant to be used in concentrations of 5% to 20% depending upon the degree of fire retardancy required.

BEL-RO-TERG 50CP
(Ross)

A special purpose dry cleaning soap. It is stated that it has all of the qualities of the regular dry cleaning soaps, but will not act as a rewetting agent once it is dried, even though it is not rinsed out. Thus, it is especially useful for dry cleaning garments that are to be made water repellent as it actually improves the efficiency of the water repellent.

BEL-RO-TERG 51-N
(Ross)

A new all purpose synthetic detergent said to possess remarkable scouring and cleansing action in hard or soft water. It is stated that it will not break down in mild acid or alkaline solutions. No precipitate is formed in salt solutions of high concentratons. It is said to be suitable for scouring all types of fabrics and unlike most detergents it softens the fabric as it cleans. It is claimed that, due to its free rinsing and nonrewetting properties it is particularly suitable for processes preceding water repellent finishes; comparatively large percentages left in the fabric will not deteriorate the water repellency.

BEL-RO-TEX 51-G
(Ross)

A nonionic softener especially suitable for use in conjunction with water repellents. Concentrations up to 1% in most cases will not reduce the degree of water repellency. Higher concentrations may be used if a water repellent finish is not required. It is compatible with Bel-Ro-Pel RTG and Bel-Ro-Pel DTW water repellents and may be applied from the same bath.

BENZOIC ACID, CRYSTALS
(Heyden)

Dye-carrier to facilitate the aqueous dyeing of Dacron with dispersed acetate dyes. In combination with dyes, it is said to yield deeper, cleaner and more level shades of protracted light-fastness. (See also salicylic acid and 5-chlorosalicylic acid.)

BLANCOPHOR R
(General Dyestuff)

A straight optical whitening agent of the urea-stilbenesulfonate type for brightening whites and certain pastel colors on animal and animal-like fibers and as a sightening agent for textile printing pastes. The brilliant violet fluorescence of this product is said to be especially effective in making outstanding whites from ordinary whites, as well as markedly raising the brightness level of pastel blues, violets and pinks. It is this strong fluorescence as made evident by an ultraviolet ray lamp that gives Blancophor R its usefulness for sightening in textile printing pastes.

BLANCOPHOR SC HIGH CONC NEW
(General Dyestuff)

A recent development in optical whitening agents for use in textile processing or commercial laundering. Its high fluorescence is said to be especially effective in imparting outstanding whiteness to otherwise ordinary whites and increasing the clarity and brightness of many pastel colors on cellulosic fibers.

BURFIX P
(Burkart-Schier)

An after-treating agent for Rapidogen colors on printed goods to inhibit bleeding on to white areas.

BURKEM 288
(Burkart-Schier)

A sulfated fatty ester. A wetting, rewetting, softening and finishing agent. It is said to have good stability and high oxidation resistance.

BURKESTER 266
(Burkart-Schier)

A nonionic wetting agent and detergent.

N-BUTYL DIETHANOLAMINE
(Carbide and Carbon)

$C_4H_9N(C_2H_4OH)_2$. M W, 161.24; Sp G, 0.971 @ 20/20°C; Distillation range, 270-275°C. (760 mm); Flash P, 260°F. (Cleveland Open Cup). Chemical properties: undergoes reactions characteristic of tertiary amines and primary alcohols. Suggested uses: in the preparation of cationic surface-active agents, synthetic resins and dyestuffs. Availability: research quantities for experimental use.

N-BUTYL ETHANOLAMINE
(Carbide and Carbon)

$C_4H_9NHC_2H_4OH$. M W 117.19; Sp G, 0.8932 @ 20/20°C; B P, 198.7 (760 mm); VP, 0.08 mm Hg @ 20°C; Fr P, -2.1°C; sol in water, complete @ 20°C; Visc, 20.2 cps @ 20°C; R I, 1.4435 @ 20°C. Chemical properties: undergoes typical reactions of secondary amines and primary alcohols. Suggested uses: intermediate for the preparation of textile finishing compounds, emulsifying agents, dyestuffs and resins. Availability: research quantities for experimental use.

CATALIN RESIN 2165
(Catalin)

A medium polymer, clear liquid resin filtered for exceptional clarity and purity for use either alone or in conjunction with Catalin Resin 6536 wherever stabilization, weight, or stiffening is required on spun rayon fabrics or fabric blends of rayon with acetate, cotton, wool, etc. The theoretical solids content of this material is 50 per cent.

CATALIN RESIN 6536
(Catalin)

A low polymer white resin of cream consistency designated for use primarily as a permanent stabilizing and crease resisting finish for use on spun rayon fabric blends of resin with acetate, cotton, wool, etc. This product is characterized as being of exceptionally high uniformity and purity, having a theoretical resin solids content of 60 per cent.

CENATOL HS
(Arkansas)

A dyeing assistant which is said to be particularly useful for naphthol dyeing processes. It is said to make possible the successful application of the so-called hot method of naphtholating, thereby eliminating the use of alcohol in this process. This product is highly resistant to caustic soda and salt in the amounts normally present in the naphtholating bath. Cenatol HS is also said to be highly resistant to hard water, and to strong acids. In the latter respect, it will withstand a 5% sulfuric acid solution at temperatures near the boil. Chemically, this product is a highly sulfated fatty ester. In physical appearance, it is an amber liquid readily soluble in water at all temperatures, and having a pH of approximately 6.0.

CERFAK 453
(Houghton)

A blend of anionic and nonionic agents said to produce a surface active agent of moderate cost with rapid wetting speed, excellent rewetting ability and good scouring ability. This product is a light, clear colored liquid, immediately soluble in all proportions of water at normally used temperatures. Usable over a wide pH range, Cerfak 453 is also nonstaining and will not affect enzymes. It is stated that this product has great versatility, meeting requirements of many wet processing operations. Its uses include: dye bath leveler and penetrant, kier boiling, carbonizing, desizing, preparation of fabrics to be Sanforized, etc.

CHEMSOL 935-N
(Synthron)

A highly concentrated, stable, complex organic polyphosphate. Recommended by the manufacturer for wetting and dispersing, especially in alkaline baths where foam is undesirable. Other applications are in vat dye reduction baths, dyeing of sulfur colors and to facilitate vat pigment padding of heavy gray goods, such as duck. It also is used as a stabilizer and penetrant in peroxide bleach baths, where it is said to improve whiteness and permit use of less peroxide. A light amber gel, Chemsol 935-N forms a clear, stable solution in warm water and is stable in caustic soda concentrations up to 7 per cent at elevated temperatures. The solution forms no foam if used at recommended concentration even with severe agitation.

CHLORAGUMS
(Morningstar, Nicol)

A full range of chlorinated potato gums for processing and finishing cotton and rayon fabrics, nets, veilings, laces, narrow fabrics both plain and elastic. From 40° up to 100° fluidity said to produce translucent to transparent films of excellent resiliency.

CHLOR-FECULE
(Morningstar, Nicol)

Potato starch chlorinated. Applicable to warp sizing of cotton, worsted or any natural fibers. Pure white and said to possess excellent clarity and flow with good cohesion to produce strong weaving warps. Made in various degrees of fluidity to meet specific requirements.

5-CHLOROSALICYLIC ACID
(Heyden)

Dye-carrier to facilitate the dyeing of Dacron. Used in low concentrations with aqueous dispersed acetate dyes, this carrier is said to exhaust the dye-bath to yield deep, level colors with excellent light fastness. (See also benzoic acid and salicylic acid.)

CHLOROWET
(Berg)

A new wetting agent of the nonionic condensate type, especially suited for the quick wetting of cotton and wool by sodium hypochlorite solutions. Due to its nonionic nature, there is no tendency to react with the hypochlorite ion, or to salt out of solution.

CIRCLE STAR GUMS—H SERIES
(Morningstar, Nicol)

High color yield printing gums from low solubility with high viscosity to any degree of solubility or viscosity forming "carrier" pastes readily removed after curing.

COMCO L 713
(Commonwealth)

A new penetrating agent of the turpene cresylate type which is recommended by the manufacturers for use in dyeing high twist yarns and tightly knit or woven fabrics. It is an amber colored liquid which registers a pH of 9.0 in a 5% solution and is said to have excellent resistance to lime, acids and alkali. It is claimed that the remarkable penetrating power and stability of this product under all dyeing conditions produces perfectly penetrated dyeings on even the most difficult yarn and fabric constructions.

CONCO ANTI FUME F
(Continental)

A commercial gas fading inhibitor in a vehicle which, it is stated, does not alter the hand of the fabric and is not the customary amine type inhibitor.

CONCO FINISH #22T
(Continental)

A water soluble resin weighter and filling agent which may be used on all fabrics and which is compatible with most other finishes, whether alkali, acid, anionic or cationic.

CONCO RIBBON FINISH #2
(Continental)

An alkyd resin finishing agent for rayons and acetates, designed to give those fibers a firm hand without impairing the natural luster of the fabric, and particularly appropriate for cut ribbons.

CONCO SULPHATE WA EXTRA
(Continental)

A new lauryl alcohol sulfate said to possess extraordinary properties of wetting, penetration, and as a general dye assistant with the greatest stability to acids.

CONCOSIZE A
(Continental)

A new vinyl thermoplastic finishing agent for all fibers, durable and on the firm side.

CONDITIONAL
(Maher)

A balanced blend of humectant agents with amine condensates to act as a conditioner and antistatic agent on wool.

CPH SERIES
(Hall)

A new series of surface active agents of the fatty acid ester type. This group includes the laurates, oleates, stearates, ricinoleates, etc, of ethylene glycol, diethylene glycol, propylene glycol, glycerine, diglycol, and the various polyethylene glycols. These esters are available as anionic and nonionic materials. They have

a wide range of solubilities, compatibilities and emulsifying properties. Used to prepare various textile compounds, lubricants, etc.

CULOFIX AB
(Arkansas)

A dye fixative that is used in after-treating direct dyed fabrics to improve the fastness of the color to washing or laundering. It is also said to be valuble for use as a pretreatment in the dyeing of Orlon and other synthetic fibers, to obtain a satisfactory shade and color value. Since it is more effective with some dyestuffs than others, a preliminary check and selection of the colors used with Culofix AB is suggested for optimum efficiency. Culofix AB is a viscous amber liquid having a pH of about 5.0. It is readily soluble in water at all temperatures.

DACRONYX
(Onyx)

A dyeing assistant for Dacron.

DECERESOL OT-B
(American Cyanamid)

A new type of Deceresol OT, recently added to this line of wetting agents. It is a free flowing white powder containing 85 parts Deceresol OT (100%) and 15 parts sodium benzoate. It disperses rapidly in cold water at concentrations as high as 20% to form stable suspensions. Since it is packed in fiber drums, it eliminates delays which have previously affected shipments of liquid grades of Deceresol OT due to shortage of stainless steel drums.

DECERESOL P
(American Cyanamid)

A liquid product containing a balanced blend of an alkyl aryl sulfonate with a monionic surface active agent. It is recommended by the manufacturer as a detergent, emulsifying and dispersing agent for cottons, as well as all types of synthetic fibers.

DECERESOL Q
(American Cyanamid)

A sulfated fatty acid derivative said to possess good wetting, rewetting, softening and lubricating properties. It is said to be stable in acid and alkaline, as well as peroxide baths. It is stated that it is excellent as a rewetting and softening agent for fabrics in Sanforizing.

DECERESOL SE
(American Cyanamid)

A cationic surface active agent said to possess excellent detergent, rewetting and surface tension lowering characteristics, and moderate bactericidal action. It is claimed to be an extremely efficient aid in the stripping of vat-dyed rayon and cotton fabrics. Chemically, Deceresol SE is a solution of stearamidopropyldimethyl-β-hydroxyethylammonium chloride and appears as a straw-colored liquid, miscible with water in all proportions.

DEFOAMER F-63
(Pioneer)

A nonionic wax emulsion used in all textile operations where excessive foam is a nuisance. One part of the concentrated emulsion, as received, is diluted with 50 to 100 parts of water. The diluted product is dripped into the foaming system until the foam is controlled.

ECT (6938) DE-SPOTTER
(Paisley)

For cleaning difficult-to-remove spots, stains, mill dirt. May be used for despotting in cloth room inspection or open width finishing. Nonflammable.

DEXTROL #1219
(Dexter)

A new, low cost softener and rewetting agent for cotton. The product is more than 70% active material and is recommended by the manufacturers as a softener or rewetting agent or as a combination softener-rewet-sanforizing assistant. It is an amber colored oil readily soluble in cold or hot water.

DEXTROL DULLER #3920
(Dexter)

A highly efficient titanium base duller that is said to have excellent suspending properties. Used in the dulling of pastel and white rayon and acetate hosiery and fabrics. It is stated that its high dulling power makes it extremely efficient.

DEXTROL #GM94
(Dexter)

A new type of synthetic softener developed specifically for use with permanent water repellent treatments and resins. It is stated that the product deos not reduce the spray rating of the fabric as is common with other softeners and it can also be mixed in with anionic and cationic materials without precipitation.

DEXTROL LEKTROSTAT B
(Dexter)

A new type of antistatic agent which is said to prevent the build up of static electric charges on nylon and the newer synthetics, during the spinning of the yarn and in the mechanical handling and dyeing of the finished fabric. The product is compatible with anionics and has no effect upon whites or lightfastness of colors. It is stated that the material leaves a definite soft hand on the fabric, and is semi-durable to dry cleaning and washing.

DEXTROL RAYON CREPE OIL #114
(Dexter)

A rayon soaking oil particularly satisfactory for crepes. This product is a blend of sulfonated oils with free cocoanut oil. Used in the crepe soaking of rayon skeins or cakes. It forms a very stable emulsion and can be used either in machine or tub soaking. Specific formulas are available.

DEXTROL SILK OIL #42
(Dexter)

Used for softening the silk gum of China and Japan silk preparatory to winding and throwing. This product may be used in standard silk soaking equipment. It forms emulsions which thoroughly exhaust onto the silk. Specific formulas on request.

DEXTROL SILK OIL #84 DUP
(Dexter)

A silk soaking oil said to be particularly satisfactory for Douppioni silk. This product is said to have excellent stability and contain over 85% active material.

DEXTROL SLIPPROOF #243
(Dexter)

A blend of specially selected soluble resins which is said to give a high degree of slipproofing to acetates, rayons and synthetic fibers. The hand is not too stiff and can be easily modified on the calendar. Slipproof #243 is said to be noteworthy in that it will not yellow whites.

DEXTROL WARP SOFTENER #919
(Dexter)

This product is a yellowish paste containing a blend of sulfonated fats, synthetic hygroscopic agents, and defoamers. It is used as a softening and plasticizing agent in the warp sizing of synthetic yarns and is also satisfactory as a softener with glue, starch and gum finishes.

DEXTROL WOOL ASSISTANT TW
(Dexter)

A blend of nonionic surface active agents and aromatic solvents recommended as an assistant in the dyeing of tippy wool. 2% to 3% on the weight of the stock is satisfactory.

N,N-DIBUTYL ETHANOLAMINE
(Carbide and Carbon)

$(C_4H_9)_2NC_2H_4OH$. MW, 157.29; Sp G, 0.8615 @ 20/20°C; BP, 229.7°C (760 mm), 141°C (50 mm), 102°C (10 mm); VP, 0.11 mm Hg @ 20°C; Fr P, sets to a glass below -75°C; sol in water, 0.39% by wt @ 20°C; sol water in, 6.8% by wt @ 20°C; Visc, 7.7 cps @ 20°C; R I, 1.4438 @ 20°C. Chemical properties: undergoes reactions characteristic of tertiary amines and primary alcohols. Suggested uses: intermediate for textile finishing compounds, synthetic resins and dyestuffs. Availability: research quantities for experimental use.

DI-n-HEXYL MALEATE
(Carbide and Carbon)

$$\begin{matrix} HCCOOC_6H_{13} \\ \| \\ HCCOOC_6H_{13} \end{matrix}$$

MW, 284.38; Sp G, 0.9602 @ 20/20°C; BP, 179°C (10 mm), 142°C (1.0 mm), 110°C (0.1 mm); RI, 1.449 @ 20°C; VP, <0.01 mm Hg @ 20°C, Fr P, -70°C (glass below this temperature); Visc, 10.2 cps @ 20°C; sol in water, <0.01% by wt @ 20°C, sol of water in, 0.3% by wt @ 20°C. Chemical properties: polymerizes or copolymerizes with other monomers to form resins, readily adds halogens to the double bond; undergoes Diels-Alder reaction with conjugated dienes; forms sodium bisulfite addition product. Uses: preparation of resins for use in textile specialties; intermediate in manufacture of wetting and penetrating agents. Available in commercial quantities.

DULLATONE AN25
(Onyx)

A resin emulsion applicable by pad or exhaustion to acetate, Dacron and Orlon yarns or fabrics to impart durable dullness.

DYEBOND WM
(Stein, Hall)

A new white overprint and white discharge resinous type binder containing a high percentage of white pigment, applicable for machine and screen printing. This product is ready to be used as is and merely requires the addition of a thickening agent. Its machine characteristics, retention of pigment and softness of print are said to be excellent. It can be used both on colored and white backgrounds where clear definitions of print are required.

DYMULSIFIER
(Maher)

A blend of wetting and dispersing agents for dispersing and levelling dyes. Especially recommended by the manufacturers for nylon colors.

DYNADYE VX
(Amalgamated)

A solution of a sodium salt of a complex phenol combined with suitable surface active agents to make it an effective dyeing assistant for the processing of Fiber V yarns, knit goods and fabrics. It is stated that it has been used successfully in the commercial dyeing of Fiber V in various forms: yarn has been successfully dyed on package machines; hosiery and sweaters have been dyed in the usual hosiery dyeing equipment; selected acetate dyestuffs and ordinary dyeing conditions have been found suitable; no difficulties have been encountered in obtaining excellent wet and dry crock fastness and extreme depth of shade.

DY-SET
(Scher)

An after-treating agent said to impart the same fastness properties to selected direct dyes on rayons, cottons and silks that are achieved with more expensive dyestuffs. Dy-Set is a colorless viscous liquid that is readily soluble in water. It requires no catalysts or agents in its application, which may be done in the usual equipment used for direct dyeing and finishing. It is claimed that the washing, acid and alkaline perspiration, hot and cold wet press, crocking and cold and hot water bleeding fastness obtained by the use of Dy-Set, has made it widely employed in the preparation of lining material and to meet specifications of government contracts. Dy-Set is compatible with most finishing materials including gums, starches, resins and repellents. Its use in conjunction with urea-formaldehyde resins is common, and said to give wash fastness with crush-proof finish. Dy-Set may be used with or without metallic salts, such as copper or aluminum. It is said that, in cross dyeing, where migration of color is a common failing, the dyer will find Dy-Set to be of great advantage. Dy-Set also finds wide use for the fixing of direct and acid colors on printed goods.

EMKABASE
(Emkay)

The product is an emulsifier for mineral oils. One part will mix cold with many times its own volume of mineral oil to form a compatible mixture. This combination is said to give a stable emulsion in water offering excellent lubricating and softening properties.

EMKACIDE MP
(Emkay)

A combination mildew preventative and deodorant. It is recommended by the mnaufacturer for use in the final rinse on goods which must lay wet between dyeing and finishing departments.

EMKAFIX C
(Emkay)

This product is designed to meet more rigid requirements for color wash fastness. Direct dyed cottons and rayons treated with 3-4% of Emkafix C are claimed to possess fastness to washing and other specifications similar to those obtained only with vat colors.

EMKAFIX R
(Emkay)

This product is designed to meet the requirements of dyers and printers for resistance of direct colors to bleeding in warm water, and for fastness to pespiration and hot wet-pressing. It is said to greatly improve fastness to washing and prevent migration of color. The product is easily applied on jigs, boxes, or padders, with 3-4% of the product used in the final rinse, based on the weight of the goods treated. Best application temperature is 120°F.

EMKAFOL D
(Emkay)

A wetting agent, leveling agent and dyeing assistant recommended by the manufacturer for use in cotton-rayon combinations and also for use in conjunction with enzymes for the more effective removal of starch sizings.

EMKAFOL S
(Emkay)

A blend of chelating and leveling agents. Claimed to be very effective when used with soap. Said to improve resistance to hard water and to have excellent softening properties.

EMKALAR
(Emkay)

A dyeing assistant for Dacron or Fiber V. Its use is said to help to obtain more level dark shades with minimum crocking.

EMKALITE
(Emkay)

A blend of synthetic detergents and mild alkalies in powder form.

EMKAPEL
(Emkay)

A one piece wax type water repellent of the semi-durable type. Easy to apply. Said to give a good spray rating.

EMKAPERM
(Emkay)

A permanent stiffening finish in powdered form. It is stated that, when used on cotton fabrics, will withstand several washings without loss of finish.

EMKAPRUF FL
(Emkay)

A flame retardent finish in liquid form, highly recommended by the manufacturers for use on napped knitted fabrics. A proportion of 1 to 2 lbs. per gallon will give no dusting or crystallization on drying. Finished material will show no afterglow on burning, and will meet fire underwriters specifications.

EMKA RIBBON FINISH
(Emkay)

A clear soluble alkyd resin requiring no curing. Used on rayon and acetate, it is said to give a stiff, papery, lustrous finish.

EMKATARD
(Emkay)

A dispersing agent for vat dyestuffs. It is said to have exceptionally good leveling qualities, to be perfectly stable in hydrosulfite and caustic, and to be non-foaming.

EMKATEX 49-P
(Emkay)

A clear amber colored jel-like blend of synthetic detergents containing terpenes, readily soluble in water. It is claimed to be an excellent scouring and leveling agent.

EMKAWATE
(Emkay)

A concentrated weighter finish containing 80% active matter. A blend of selected plasticizers and hygroscopic agents with a gum resin binder. It is said to impart to fabrics a full soft hand. It is compatible with gums and glues and is used with them if a full firm hand is desired. Claimed to be an excellent spun rayon, wool, and silk finish.

EMKAWATE GX
(Emkay)

A blend of weighter powders containing fatty softeners. Used in conjunction with starch for imparting a heavier full hand in cotton piece goods finishing.

N-ETHYL ETHANOLAMINE
(ETHYLAMINOETHANOL)
(Carbide and Carbon)

$C_2H_5NHC_2H_4OH$. M W, 89.14; Sp G, 0.9182 @ 20/20°C; B P, 167.1° (760 mm); V P, 0.4 mm Hg @ 20°C; Fr P, -7.8°C; sol in water, complete @ 20°C; sol water in, complete @ 20°C; Flash P, 160°F. (Cleveland Open Cup). Chemical properties: undergoes reactions characteristic of secondary amines and primary alcohols. Suggested uses: preparation of surface-active agents, textile dyestuffs and resins. Availability: research quantities for experimental use.

EVANATE XL
(Amalgamated)

A nonionic condensate combined with a glyceride. It contains no sulfonates, amines, soaps or inorganic salts. It is a thick amber paste. It is approximately neutral, having a pH of slightly under 7. It is claimed to be an excellent dispersing agent for most types of dyestuffs, especially acetate dyes, neutral dyeing acid colors, and acid dyes. It is also claimed to be an extremely good retarding and levelling agent for these same dyestuffs. It is stated that it is stable when used with acids or alkalies and will prevent the formation of oil or scum marks. It is recommended by the manufacturers for use as a pasting and dyeing agent for dyes used on acetates, wool, nylon, cashmere, vicara yarns or fabrics. It is further recommended for use on blends of these fibers. It is claimed to improve to a remarkable degree the union obtained between the different fibers.

EXZYME
(Pabst)

A protein digester of high activity—a cultured enzyme intended for use in the dry cleaning industry. It is intended for use in the removal of albuminous spots and may be used either in the bath or on the board. It is claimed that it will remove stains that no other digesters will.

FIBACON L-1379
(Burkart-Schier)

A highly refined soluble oil. A finish and lubricant for knitting yarns, a coning oil, an emulsion trough lubricant. It is said to be characterized by emulsions of fine particle size and excellent stability.

FILASEAL SOFTENER FA
(Amalgamated)

One of a new and novel class of softeners and lubricants covered by U S patent 2,541,101. It is a reaction product of an alkyl amine and a substituted hydantoin. It is said to be capable of imparting to fibers, yarns and fabrics a full soft drapy hand which is resistant to repeated launderings and dry cleanings. It is further said to have no harmful effect on light resistance or fastness of most dyestuffs. It is an exhausting type of softener and may be applied from either a quetsch or a long bath. It may be applied at most any temperature but in practice temperatures in the range of 110°F to 140°F have been found very satisfactory. It is said to be useful for softening most textile fibers and can be used on wool, cotton, rayon, nylon, Vicara, Dynel, Orlon and Dacron.

FIRMEL
(Bryant)

A polymerized water-soluble resin of the heat-reactive type. Recommended by the manufacturers for coating, glazing and stiffening of textiles. Can be rendered insoluble by admixture with proper accelerator and curing.

FUNGICIDE CPS
(Arkansas)

A mildewproofing composition containing 10% of copper 3-phenylsalicylate as the active mildew inhibitor. It is primarily intended for use in one-bath applications to textile material either alone or in conjunction with water repellent compounds. For the latter purpose, it is highly compatible with Aquarol AX. In consistency and appearance Fungicide CPS is a soft gel of greenish tan color. It is readily miscible with warm or hot water to produce a stable colloidal dispersion which is suitable for application to all types of fabric. The pH of this dispersion is 4.0 to 4.5 at the usual working concentrations of 10% to 20%.

FUNGICIDE ZV
(Arkansas)

A mildewproofing composition containing 20% of a synergistic mixture of the zinc salts of dimethyl dithiocarbamic acid and 2-mercaptobenzothiazole. It may be used either alone or in conjunction with a water repellent compound in the same bath. It may also be used as the first step of a two-bath process with or without the addition of a wax emulsion, followed by a second bath containing a water repellent composition. In appearance and consistency, Fungicide ZV is a soft white paste which is readily miscible with warm

or cold water to produce a stable colloidal dispersion suitable for application to many types of textile fabrics. The pH of this dispersion in the usual working concentrations, is in the range of 7.0 to 7.5.

GRAPHITE REMOVER
(Commonwealth)

A highly concentrated, odorless, nontoxic dispersion of Montmorillenite, said to possess the unusual property of intense affinity to graphite particles. It is stated that the product is, therefore, an effective cleansing agent for graphited fabrics made of nylon, Orlon, rayon, acetate, cotton laces, veilings, webbings, Lastex girdle fabrics, and curtain materials. It is a heavy paste, easily dispersed in equal amounts of water.

GRIP-N-FREE
(Maher)

A plasticized wax for holding cloth in screen printing. It is stated that it may be applied to the table, and the material pressed against it will hold firm, but may be freed by lifting, and moved as desired, and Grip-N-Free will retain its adhesiveness for numerous applications.

HALLCO SERIES
(Hall)

A new series of surface active agents of the fatty acid ester type. This group includes the laurates, oleates, stearates, ricinoleates, etc, of ethylene glycol, diethylene glycol, propylene glycol, glycerine, diglycol, and the various polyethylene glycols. These esters are available as anionic and nonionic materials. They have a wide range of solubilities, compatibilities and emulsfying properties. Used to prepare various textile compounds, lubricants, etc.

HEXANETRIOL-1,2,6
(Carbide and Carbon)

$HOCH_2CH(OH)CH_2CH_2CH_2OH$. M W, 134.17; Sp G, 1.1063 @ 20°/20°C; B P, 178°C (5 mm); V P <0.01 mm Hg @ 20°C, Fr P, sets to a glass below -20°C; Visc, 2584 cps @ 20°C; R I, 1.4771 @ 20°C; Fl P, 380°F (Cleveland Open Cup); miscible with water in all proportions @ 20°C; color, water-white. Chemical properties: similar to those of glycerol; contains three hydroxyl groups which undergo characteristic reactions with acids, chlorinating agents, etc. Uses: softener and plasticizer for casein, zein, starch, dextrin; coupling agent and solvent for textile dyes. Availability: semi-commercial quantities.

HI-GLOSS #313-A FINISH
(Morningstar, Nicol)

A high, glossy, adhesive finish for the manufacture of millinery and shoe buckrams. Practical application described in comprehensive bulletin.

HI TEMPS
(Richmond)

A new type cationic softener which is said to stand higher temperatures without yellowing. Hi Temp C is for cotton and rayon and Hi Temp N is for nylon.

HOMOGESOL LTD
(Woonsocket)

A new shrink-proofing assistant for wool of the modified urea-formaldehyde type. This product is said to be an extremely effective shrink-proofing agent for all woolen fabrics and to reduce the cost of the available melamine type resin finishes by at least 50%. Homogesol LTD is said to impart a very desirable hand to any fabric and improve the draping quality of the fabric tremendously. It is claimed to be one of the most outstanding developments of the urea formaldehyde family of resins in the last few years.

HOMOGESOL SP
(Woonsocket)

A low polymer urea formaldehyde condensate of the sesqui and mono methylol urea type. It is said to be an outstanding crease proofing and shrink proofing urea formaldehyde resin which can be also applied in the process of durable glazed and durable embossed finishes. It is recommended that the cured and finished product be washed in a solution of Resanil D and soda ash to remove excess resin and neutralize the fabric, eliminating thereby all formaldehyde odor. It is stated that for utmost efficiency, crease proofing and shrink proofing formulations should include the use of Resassist AC (a Woonco Catalyst) and Resasoft LT (a Woonco softener).

HOUGHTO-SIZE 475
(Houghton)

This new sizing compound, a white granular powder, is said to greatly facilitate the handling and preparation of cotton warp sizing solutions. This product is a one-piece compound, containing the needed ingredients to soften and condition the starch film. Houghto-Size 475 can be mixed with cold water, prior to adding starch. Advantages of this size are claimed to be: uniform accuracy and simplicity of preparing, easy handling, high binding properties, less shedding, improved smoothness, good elongation, excellent flexibility, and better weaving.

α-HYDROXYADIPALDEHYDE
(50 PER CENT AQUEOUS SOLUTION)
(Carbide and Carbon)

$OHCCH_2CH_2CH_2CH(OH)CHO$. Representative properties of 50% aqueous solution: Sp G, 1.149 @ 20°/20°C; B P, 101.5°C (760 mm); V P, 15 mm Hg @ 20°C; Fr P, -6.2°; Visc, 29.3 cps @ 20°C; R I, 1.4181 @ 20°C; pH, 2.25 (approx); completely miscible with water; Fl P, none; odor, sharp; color, water-white. Chemical properties: Reacts with proteins and polyhydroxy compounds resulting in insolubilization; forms acetals with alcohols; reacts with primary amines to form imides, and with sodium bisulfite to form the sodium bisulfite addition product. Uses: Insolubilization of proteins and polyhydroxy compounds such as polyvinyl alcohol in nonwoven textiles. Suggested for trial for imparting shrink-proofness and crease-resistance to textiles such as rayon, cotton, and wool. Availability: semi-commercial quantities.

IGEPAL CA EXTRA HIGH CONC
(General Dyestuff)

A wholly synthetic anhydrous nonionic surface-active agent in liquid form containing 100% of active material and said to possess outstanding properties as a detergent, wetting agent, emulsifying agent and dispersing agent. Two distinguishing features of this product resulting from its chemical composition are its chemical stability and its retention of activity in the presence of acid and alkali and in the presence of metallic salts, including very hard water.

IGEPAL CO EXTRA HIGH CONC
(General Dyestuff)

A wholly synthetic anhydrous nonionic surface-active agent in liquid form containing 100% of active material and said to possess outstandng properties as a detergent, wetting agent, emulsifying agent and dispersing agent. Two distinguishing features of this product resulting from its chemical composition are its chemical stability and its retention of activity in the presence of acid and alkali and in the presence of metallic salts, including very hard water.

IGEPON NF
(Antara)

A low foaming detergent said to possess good wetting, emulsifying and dispersing properties. This is a modification of Igepon T and is said to be applicable where the high foam usually associated

with the T type is objectionable in textile processing. It is a water-soluble paste product said to possess good stability to iron and copper as well as moderate concentrations of acid and caustic alkalies.

INTERCHEM COPPER-8
(Interchemical)

Interchem ® Copper-8-Quinolinolate and Interchem Copper-8 Dispersion are fungicides for use on a wide range of woven and nonwoven textiles to prevent or retard mildew and rot for both military and civilian requirements.

IONIL POWDER CONC
(Maher)

A powdered polyhydric alcohol ether especially recommended by the manufacturers as a detergent, dyeing assistant, and levelling agent. It is nonionic.

IRGACLAROL NF
(Geigy)

A nonfoaming wetting out agent designed for use wherever it is desirable to wet out goods without the formation of suds or foam in the bath. It is a free flowing, amber colored liquid instantly soluble in water in all proportions. It is said to be especially useful as a wetting out and penetrating agent for packaging, dyeing, and for sinking yarns and fabrics of the type that tend to float due to occlusion of minute air bubbles. It is said to be effective in neutral, acid, and alkaline solutions, in solutions containing sodium chloride and sodium sulfonate and even more effective in hard water than in soft water.

IRGAMINE RU 100
(Geigy)

Irgamine RU 100 is a new substantive softener for textile fabrics available as a 100% active solid. It is readily soluble in warm water forming nonfoaming solutions. It is said to be compatible with cationic, nonionic and anionic materials, and to be substantive at pH's between 4.5 and 10. It is claimed to be nonyellowing under the influence of heat, nonabsorptive of chlorine, and excellent for use on dyed fabrics because it has only a very slight influence on the color of dyed fabrics.

KERLU
(Maher)

A blend of emulsifying and lubricating agents for use on wool to reduce static and improve the spinning qualities of the stock. May be used alone or with wool oil.

KOJEL
(National Starch)

A new cold water swelling printing thickener recommended by the manufacturers for vat, Rapidogen, acetate, direct colors and also for white discharge. It is said to be particularly suitable for roller machine and screen printing of cotton and rayon fabrics. It is stated that it produces prints with high color yield and is easily removed with a light wash.

KREELON* CD
(Wyandotte)

A new grade of Wyandotte's alkylarylsulfonate detergents said to offer advantages in scouring, kier boiling, after soaping, desizing and other phases of wet processing cotton. It is claimed that, when substituted for other alkylarylsulfonates, it offers a 20-70% improvement in soil removal and whiteness retention; it is fast acting and dustless. Samples and literature may be had upon request. Available in commercial quantities.

* Reg U S Pat Off

KUPRATE* OS 10
(Warwick)

Copper-8-quinolinolate content 10% min. Copper content as Cu - 1.81 - 1.90%. Designed for use as a mildewproofing agent where water repellency is not desired.

KUPRATE* OS 10WR
(Warwick)

Copper-8-quinolinolate 10% min. Copper content as Cu - 1.81 - 1.90%. Designed for mildewproofing of webbing and is said to contain enough water repellent material to pass dynamic absorbency test.

KUPRATE* OS 10WR Spec
(Warwick)

Copper-8-quinolinolate 10% min. Copper content as Cu - 1.81 - 1.90%. Formulated for use on piece goods where the specifications require spray rating hydrostatic test.

KUPRATE* OSC 10
(Warwick)

Copper-8-quinolinolate 10% min. Copper content as Cu - 1.81 - 1.90%. Designed for mildewproofing cordage.

63-N LAWN FINISH or NO 62
(Morningstar, Nicol)

Bright and clear effects with No. 62 or soft and dull with 63-N, both yield maximum flexibility. Practical application described in bulletin.

LYOFIX SBW CONC
(Ciba)

A cation active fixing agent recommended by the manufacturers for improving the fastness properties of direct, acid, sulfur and developed colors to water, seawater, sizing, milling, washing, finishing, perspiration and damp hot pressing. Because of its good stability to steaming, it also can be used on dyed fabrics that are to be discharge printed.

MACCO PEARL SOFTENER
(Mac)

A wax base paste product for all types of dyed and bleached goods. It is stated that it will not oxidize on bleached goods and imparts a good finish to fabrics, hosiery, rugs and yarns. It is further stated that it is easily soluble in warm water and penetrates perfectly on package-dyed yarns.

MACCOSET
(Mac)

A new type finish used in the last wash, after dyeing or bleaching, to give body and scroop to infant's and anklet hose. This product is said to improve the color and at the same time to fill up the knitting courses so that patterns in the top or body of the hose remain stationary in the inspecting, pairing, boxing, etc. It can be applied to cotton, rayon, nylon or synthetic yarn combinations.

MARCAMINE MAC
(Maher)

An amine condensate especially developed for use in the textile industry. It is claimed to be an excellent emulsifying agent, dispersing, levelling and wetting agent.

MARCATON O-20
(Maher)

This is an acetylated cation-active fatty condensate which is said to give a softer finish than the regular cationic.

MARCO EMULSIFIER MAC
(Maher)

A fatty acid amide having an exceptionally wide range of uses. It is claimed to be an excellent detergent, a lubricant, a wetting agent and a softening agent. In dilute water solutions it also acts as a thickening agent.

MARCOCIDE C-8
(Maher)

A cationic copper-8 dispersion for pre-

venting mildew.

MARCOCIDE CQ
(Maher)

An anionic copper-8 dispersion for mildewproofing textile fabrics.

MARCORESIN C
(Maher)

A polymethacrylic solution designed for sizing nylon and cotton flock.

MARCOSIZE T
(Maher)

A polyacrylic solution especially designed for sizing nylon tricot yarns.

MARCUFIX
(Maher)

A resin type fixative for aftertreating dyestuffs to produce fastness to washing and light.

MARIC ACID POWDER
(Maher)

A powdered complex organic acid which replaces acetic and formic acids in dyeing operations.

MARSEPT O
(Maher)

An antiseptic, fungicide and bactericide of the PCMX type, this is said to have found many uses alone and in conjunction with detergents.

MERCETEX #756
(Standard Chemical)

A mercerizing assistant, penetrant, and lubricant that is soluble under alkaline, neutral, and acid conditions and in all concentrations of caustic soda up to 60° Tw. It is nonvolatile, nonfoaming, and is said to prevent chafing of the goods in processing.

MONALIT WCA
(Mona)

A yarn conditioning agent to be used in the emulsion troughs of winders. It is said to restore moisture, lubricate the yarn and protect against mildew and bacterial deterioration of cotton and wool yarns.

MONALUBE "W"
(Mona)

An emusifiable oil for the finishing of woolen and hair yarn skeins, directly in the dye bath. It is said to improve the knitting characteristics of the yarns and decrease the fly from these yarns. The emulsion is substantive to the yarns in a hot acid bath.

MONAMINE AA-100
(Mona)

A wetting, scouring and emulsifying agent of the nonionic type. Said to be particularly suited for the scouring of wool and worsted fabrics in alkaline medium. Recommended by the manufacturers for the emulsification of silicone waterproofing agents.

MONAMERCE A-30
(Mona)

Claimed to be a powerful mercerizing assistant for use in 30° Be caustic solution.

MONAMINE AD-100
(Mona)

A scouring and emulsifying agent of the nonionic type. It is recommended by the manufacturers for fulling in alkaline medium and for the scouring of shoddy. Also recommended as a kier assist.

MONAMINE ADC-100
(Mona)

Boil-off compound for use in jigs on cellulose acetate fabrics and other synthetic fibers. Also recommended by the manufacturers as a Sanforizing assistant for re-wetting purposes.

MONAMINE AP-25
(Mona)

Boil-off compound for use in jigs and on fabrics containing high amounts of gelatine size.

MONAMINE DT-100
(Mona)

A cationic softener which is said to have the advantage of impairing the lightfastness of the colors to the least amount, and of showing very little chlorine retention.

MONASOL WAX P-33
(Mona)

A soluble wax for softening and water repelling purposes.

MONATEC
(Mona)

A substantive anti-gas fading agent of the three cycle type.

MONATERGE "S"
(Mona)

A sulfated fatty acid-amine condensate recommended by the manufacturer for the boil-off and scouring of rayons and other synthetic fibers, as a dye assist and penetrant. It is also said to be suitable as a scour for raw wool, as a carbonizing assistant and in the fulling mill.

MONATONE "A"
(Mona)

A specialty soap compound recommended by the manufacturers for the boil-off and scouring of cotton and rayon piece goods. Also recommended as a kier assist.

M O SIXTEEN
(Paisley)

Sizing and soaking oil (pine free). Forms transparent solutions in hot or cold water; claimed to possess high lubrication value replacing cocoanut or other conventional soaking oils with 40 to 50 per cent less employed. Used with gelatin sizing prevents warps from sticking to cylinders.

MPS-500
(Hooker)

A new plasticizer for vinyl compounds, such as films, sheetings, upholstery, draperies, etc. It may be used as the sole plasticizer or as a secondary plasticizer, depending upon properties desired. It is said to impart good flexibility with high tensile strength. It is further said to impart fire retardance and to have excellent permanence on heat, water, oil and gasoline aging.

NAMICO H-188
(National Milling)

This liquid dyeing assistant has been developed especially for skein. It is said to be very effective on pure silks, acetate, rayon, Bemberg, nylon and the newer fibers Dacron and Orlon. It is stated that its high wetting and emulsifying power assist fibers in absorbing dye. It also is said to possess unusual dispersing and dye leveling ability.

Other properties claimed:

Effect of Temperature: Stable at 212° F. Effective in hot and cold solution.

Alkalinity Stability: Stable in strong solution.

Acid Stability: Stable in strong solution.

Metal Ion Stability: Stable to all metals except Barium.

NATIONAL NACCOLENE CONC
(National Aniline)

A solvent soluble surface active agent of the alkyl aryl sulfonate type soluble or miscible in all proportions with mineral oils, mineral spirits and most animal or vegetable oils. It is a good emulsifying agent. Principal uses—preparation of dry cleaning detergents, leather oil emulsions, wax compositions or polishing and finishing compounds, addition agent for solvent cleaning compositions.

NATIONAL NACCONOL DB
(National Aniline)

An alkyl aryl sodium sulfonate. This material is spray dried to provide a very dense bead with high physical strength characteristics. It is particularly suited for blending in proprietary cleaner compositions. It is dust free and does not break up to form dust during mechanical mixing operations.

NATIONAL NACCONOL NRCL LIQUID
(National Aniline)

An alkyl aryl sodium sulfonate in concentrated liquid form. This material shows excellent cold weather storage characteristics and will remain clear and free of precipitation during extended chilling at 32° F. It is obtainable in either drum or tank car quantities.

NATIONAL NACCOTAN A
(National Aniline)

A concentrated dispersing agent suitable for the dispersion of several types of pigment colors as well as for the dispersion of pitch in paper making operations.

NATIONAL NACCUFIX
(National Aniline)

This product offers a means of obtaining good fastness to light, washing and perspiration on cellulosic fibers from a simple after treatment of dyeings produced with select dyes. It is easily applied to the material after dyeing, using about 2 per cent, based on the weight of the material, and treating for about 20-30 minutes at 160° F, followed by rinsing and soaking.

NEOZYME L AND L CONC
(Royce)

These are two concentrations of the same enzyme. They are identical in composition with Neozyme HT, a high temperature desizing enzyme in powder form. Like Neozyme, they show very little loss in potency when kept in solution at a temperature of 160° F for three hours. Said to be rapid acting and uniform in strength.

NEUSCOUR CONC
(Maher)

A polyhydric alcohol ester which is a nonionic concentrate, claimed to be excellent for use as a detergent, dyeing assistant, wetting agent, in either acid or alkaline conditions. Neuscour Conc is especially recommended by the manufacturers for the efficient scouring of raw wool stock where it is used straight with no soap, soda, or other additions at elevated temperatures to produce, it is claimed, a cleaner, whiter and loftier wool than would be possible with any other scouring method.

NEUSCOUR W
(Maher)

An especially economical product for use in the scouring and dyeing of reclaimed and shoddy stock such as used in cheap hose, ski suit cloth, etc.

No 63-NT STIFF FINISH
(Morningstar, Nicol)

Specially developed for stiff millinery finishes with special emphasis on flexibility. Practical application described in comprehensive bulletin.

NONISOL 300
(Geigy)

Nonisol 300 is a powerful antigeiling agent for starch that controls the viscosity of starch pastes throughout processing operations and permits such pastes to be stored when necessary. Nonisol 300 is an organic condensate dispersable in water and soluble in organic solvents other than hydrocarbons. It is a soft, waxlike material of 100 per cent active ingredients; effective in acid, neutral and alkali solutions. It is claimed 1 to 2 per cent of Nonisol 300 added to starch before boiling up solubilizes starch pastes, thus preventing gelling and permitting starch to replace more expensive gums in many formulations.

NOPCO* 2252-A
(Nopco)

A nonionic, chemically stable wax size which also is said to possess good stability to mechanical agitation. This product is recommended by the manufacturers for use with starch, providing lubrication to starch sizes while not affecting the viscosity of the starch solution. It is said to be particularly effective for warp-sizing cottons and worsteds as well as for starch finishes on cottons.

* Reg U S Pat Off

NOPCO* 1425-B
(Nopco)

A new dye leveling agent for use on woolen fiber stocks, yarns and fabrics. It has been especially formulated for achieving evenness of shade on tippy wool and may be used in a variety of formulas. Exceptionally good results are claimed for the product when used on piece dyes and in union dying.

* Reg U S Pat Off

NUFILM
(National Starch)

A new starch derivative recommended by the manufacturers for warp sizing filament viscose, spun rayon and cotton yarns. It is said to be suitable for use on yarns which can be woven at low comfortable humidities. It is stated that it is readily removed with a light soaping and without the use of enzymes and that many fabrics can be completely desized in the dyeing and thereby eliminating one or more desizing operations.

NUODEX COPPER QN 18%
(Nuodex)

A combination of copper-8-quinolinolate and copper hydroxy naphthenate specifically engineered to meet mildew resistance requirements of government specification MIL-D-10860, alternate (c) which requires joint use of these fungicides to deposit a total of 0.45 per cent copper as metal. Incorporation of the product involves no change from normal procedure; thorough stirring into treating composition is all that is required.

NYANTHROL DCR
(Nyanza)

A new assistant for the dyeing of "Dacron" polyester fiber. The addition of Nyanthrol DCR to the dyebath is said to be very effective in the dyeing of acetate colors. Medium to full shades are easily obtained and with the proper selection of the acetate dyestuff excellent fastness to light and washing are said to result.

NYANTHROL LD
(Nyanza)

This product is recommended by the manufacturers for dyeing "tippy" wool with chrome and acid milling colors. An addition of 1-2 per cent Nyanthrol LD to the dyebath is said to produce solid shades of good depth and fastness even

in the case of chrome colors which have a tendency to dye unevenly.

NYA-PERMOL
(Nyanza)

Recommended by the manufacturers for aftertreating a selected group of direct colors to improve their fastness. It is claimed to be possible by a simple after-treatment with Nya-Permol and copper salts to produce a wide range of shades of remarkable fastness to washing. Exceptionally good results are said to be obtained by using Nya-Permol in conjunction with crush-proof synthetic resins and the washing fastness is still further improved.

NYLON RESIST MFF
(Geigy)

A colorless compound recommended by the manufacturers for resisting nylon against selected acid, chrome or direct colors. It is said that the product is effective not only for protecting the nylon in subsequent cross dyeing operations, but also in achieving balanced shades on wool/nylon combination fabrics when acid or chrome colors draw heavier onto the nylon than on the wool.

NYLON SCOUR BL
(Berg)

A new mixture of alkalies and synthetic detergents. This product is particularly recommended by its manufacturer for the boiling off and dyeing of nylon hosiery. It is claimed that thorough scouring is obtained, producing level dyeing and good unions at a considerable saving of time.

NYLONYX DULLATE
(Onyx)

A duller for nylon hosiery.

NYWAX
(Maher)

A blend of emulsified waxes that is used as a finish on nylon thread.

ONYXOL 336
(Onyx)

A detergent, emulsifying, wetting and dispersing agent.

ORADEX O
(Commonwealth)

An alkyl sulfite which has been designed for use in dyeing Orlon at atmospheric pressure by the cuprous ion method to produce deep shades of navy, brown, green, maroon, etc.

OR-NYL
(Morningstar, Nicol)

A series of dry products of the MNI system of sizing both filament and spun yarns, including Orlon, nylon, Dacron, Acrilan, Dynel, acetate, viscose or blends of any of these fibers with cotton, wool, flax, etc. No softeners required. Desizing in normal boil-off without the use of enzymes.

PAISCOTE #7758
(Paisley)

Nonfoaming, nonscumming lubricant for wet twisting paper yarn from regular or wet-strength papers. A white, non-staining cream, used in concentrations of from ½-4 per cent dispersed in water.

PAPER TWINE SIZE #6906
(Paisley)

Gives acceptable body with flexibility to yarns used for stuffer warps and carpet filling. May be used in conjunction with starches and dextrines to impart increased film strength.

PARASOL
(Burkart-Schier)

The basic name for a series of self-emulsifying waxes and finishes.

PENTROFIX
(Maher)

A special carrier for dyes to fix them on Dacron and other synthetic fibers to produce fastness to washing, crocking and the like.

"PERDOX"* SODIUM BORATE PERHYDRATE ($NaBO_3.H_2O$)
(Du Pont)

Sodium borate perhydrate is a white powder containing a minimum active oxygen content of 15.5 per cent. It is stable at ordinary temperature and low humidity. It dissolves readily in water, with a slight evolution of heat, to produce a mildly alkaline peroxide solution. In general, "Perdox" can be used for the same purposes as sodium perborate tetrahydrate. It is a mild bleaching agent containing about 50 per cent more active oxygen than the tetrahydrate and is somewhat less alkaline. In the textile industry, "Perdox" is used for bleaching and for the oxidation of vat colors. When substituted for the tetrahydrate, formulas must be adjusted to make allowance for the additional available oxygen provided by "Perdox."

* Trade Mark

PEREGENE A
(Antara)

A new stripping assistant of the polyvinyl pyrrolidone type. This product is said to be a highly effective assistant for stripping vat, sulfur and direct dyeings because it irreversibly binds the loose dye once the cellulose-dyestuff bond is broken by the use of a caustic-hydro blank vat. It is claimed that, by the use of Peregene A, a much more complete strip is obtained than by conventional methods with the additional advantage that any slight residual color remaining on the fiber will be of the same general shade character as the original before stripping. This is of value when stripping goods which have to be redyed to shade. Depending on the nature and depth of dyeing to be stripped 1 cc to 3 cc Peregene A per liter of blank vat is the effective use concentration. Because it permanently binds dyestuff in solution, it cannot be used as a leveling agent.

PERMASIZE N
(Maher)

A blend of synthetic resins with vegetable additions to produce a permanent stiffening finish.

PERMARESIN W
(Maher)

A combination of synthetic resins for producing a permanent stiffening finish on cellulosic materials.

PHORWITE GG
(Pharma)

An optical whitening agent with a slightly blue green cast, for cotton and viscose.

PHORWITE RN
(Pharma)

An optical whitening agent for cotton and viscose.

POLYACRYLIC ACID
(American Polymer)

For use in the manufacture of nylon warp sizes. *Data Sheet P-32.*

POLYETHYLENE GLYCOL CHLORIDE 210
(Carbide and Carbon)

$H(OCH_2CH_2)nCl$. Sp G, 1.1655 @ 20/20° C; Fr P, sets to a glass at —60° C; Fl P, 280° F (Cleveland Open Cup); sol in water, complete @ 20° C. Chemical properties: may be condensed with alkali celluloses; terminal chlorine atom reacts with amines or amides to form the cor-

responding polyglycolamine or amide; it may also react with alkali cyanides to form, after acid hydrolysis, the corresponding carboxylic compound. Uses: preparation of nonionic surface-active agents, dyeing assistants, water-soluble dyestuffs, and textile and leather specialties. Availability: semi-commercial quantities.

POLYPROPYLENE GLYCOL 2725
(Carbide and Carbon)

$HO(C_3H_6O)_nC_3H_6OH$, Avg M W, 2725; Sp G, 1.0 (approx.) @ 20°/20° C; Visc range 1600-1700 S U S @ 100° F; Fl P, 420° F (Cleveland Open Cup); Fire P, 490° F; odor, mild; color, light yellow; soluble in aliphatic ketones, alcohols, and esters, glycol-ethers, and in most common chlorinated solvents as well as in large numbers of aliphatic and aromatic hydro carbons; only very slightly soluble in water; compatible with natural waxes, oils and resins such as carnauba wax, beeswax, pine oil, ester gum, and wood rosin. Chemical properties: The two hydroxyl groups can be esterified with organic and inorganic acids; with dibasic acids it forms resins of the alkyd type. Uses: Preparation of emulsifying and de-emulsifying agents, defoaming agents, and textile compounds. Availability: semi-commercial quantities.

POLYSTYRENE LATICES
(American Polymer)

Raw materials for producing dulling agents for sizing and finishing emulsions. *Data Sheet P-19.*

POLYVINYL ACETATE EMULSIONS
(American Polymer)

Raw materials for manufacture of textile finishes. Said to be the broadest range commercially available with 10 types to choose from. Permanence, crispness, stiffening, and wash resistance properties are claimed. May be used as a base for combining adhesives. *Data Sheet P-16.*

POLYVINYL ACETATE SOLUTIONS
(American Polymer)

Raw materials for manufacture of textile finishes. May be used for nonraveling saturants, combining adhesives and heat seal coatings. *Data Sheet P-15.*

PRODUCT 51-AA
(Ross)

A new all purpose water repellent for use on all types of fabrics. It is a single product aqueous emulsion and is applied by means of a padder with subsequent drying. The emulsion is said to be extremely stable and its use to require very little attention on the part of the operator. It is stated that it is extremely effective and low in price.

PROLIME
(Bryant)

An organic sequestering agent for lime, magnesium and iron. Stable at boiling temperature for extended periods of time. Said to be valuable in dye bath, print paste and scouring.

PROTENOL W
(Continental)

A new wool chemical for the dye bath which, because of its protein derivation, is said to cut dyeing time in half, prevent deterioration in strength or stretch of the fiber when dyed with chrome or other colors, buffer alkalis, completely substitute for glue in vat dyeing, stabilize the dye bath; and to be invaluable in carbonizing or in stripping with alkali, reduce the need for the use of Glauber's salt and acid practically in half.

QUAKER DIANOL 50
(Quaker)

An anionic wetting agent and penetrant said to possess unusual compatibility and stability for use in operations where conventional wetting agents are insoluble or unstable. This material is essentially a neutral solution of low-foaming symmetrical, highly branched alkyl aryl sulfonates. It is claimed to be less susceptible to hydrolysis, saponification, desulfonation, oxidation, and reduction than other types, e.g., the normal alkyl benzene sulfonates. Because of its symmetry and molecular range Quaker Dianol 50 is said to be less readily salted out by high electrolyte concentrations than other types of surface active agents. It is recommended by the manufacturers for unusual rather than routine use and can be applied as a component in kier formulations and carbonizing treatments. It is also said to be useful as an assistant in dyeing vat, sulfur and acid dyestuffs, in enzyme desizing, or as a penetrant in caustic pre-treatment of rayon greige goods.

QUAKER DIANOL ANS
(Quaker)

An anionic detergent gel, synergized for maximum detergency and said to have high foaming capacity with efficient wetting action. This neutral blend of alkyl aryl sulfonates with its adjuncts is designed to promote dispersion, increase penetration, and retard redeposition, thereby giving thorough detergency with complete rinsing. It is stated that it may be used to advantage in the continuous washing of woolens and worsteds, in the continuous and batch boil-off of synthetic fabrics and in fabric scouring and dyeing by split-bath method.

QUAKER DIANOL G-2-H
(Quaker)

An efficient detergent and filter conditioning product with wetting and dye leveling properties. This detergent is essentially a concentrated solution of a synergized fatty amide condensate, giving a low-foaming processing bath. It is said to be stable to acids, alkalies, and oxidants. Quaker Dianol G-2-H is recommended by the manufacturers for heavy scouring of yarns, piece goods, and hosiery with or without alkalies and may be used as a stable adjunct in chlorine bleaching or wool shrinkage treating. It is said to leave fibers or fabrics softened and conditioned for further processing.

QUAKER DIAPENE VH-6
(Quaker)

This concentrated dispersion of thermoplastic resin is recommended by the manufacturers for the production of maximum fullness and stiffness on a variety of fabrics, including cellulose acetate. It is especially designed for stability with other finishing adjuncts. The product is said to give good stiffness and fullness as well as minimum mark-off and maximum clarity of finish. It is claimed that, unlike some resin finishes, Quaker Diapene VH-6 does not render fabrics susceptible to needle cutting.

QUAKER PROSOTEX 143
(Quaker)

A body-building finish said to impart a firm, full hand to cotton, rayon, and synthetic fabrics. Special organic body-building and weighting components have been blended to give a smooth, pourable paste. May be used alone to give its own particular finish or may be used with certain resin finishes to modify their results. It is claimed that, in addition to imparting a firm and luxurous hand, this weighter finish also fills the fabric to advantage.

QUAKER PROSOTEX 145
(Quaker)

A weighter finish said to impart a firm, full and lively hand. This weighter is a blend of special body-building and finishing components and is supplied as a smooth, flowable, translucent paste. It is stated that it has been used successfully on synthetic fabrics, yielding various effects depending upon the application. Quaker Prosotex 145 is suggested wherever a full, firm and springy hand is desired.

QUAKER VELVETOL AL
(Quaker)

A highly absorbent anionic fabric finish said to impart surface smoothness with moderate draping quality. Consists of a blend of sulfated and neutral synthesized fatty derivatives (not sulfonated oils or tallows) giving a combination of effects otherwise obtained by formulations containing several softening and rewetting components. The product is anionic and should not be mixed with cationic materials or with Epsom salts, etc. Quaker Velvetol AL is suggested for the finishing of cotton fabrics which are required to have good absorbency, a pleasant surface effect, and a full, round hand.

QUAKER VELVETOL MS
(Quaker)

A substantive finish for imparting suedy softness to a wide variety of fabrics. This material is a smooth, concentrated aqueous paste of high molecular weight cationic lubricants and softeners. Being unusually light in color it minimizes staining and discoloration of fabrics. In the presence of mild alkali, Quaker Velvetol MS has minimum effects on shade or light fastness of dyestuffs. It can be used in rinse operations to reduce fabric harshness and facilitate subsequent handling. This softener can also be used as a finish on goods which are to be napped. Its antistatic properties also are said to contribute to its value in fabric finishing.

QUAKER VELVETOL SS
(Quaker)

Claimed to be an exceptionally stable softener for surface smoothness and retention of body. It is uniquely compatible in the most unusual range of finishing baths. It may be used, for example, with Epsom salts, flameproofing materials, water repellents, and synthetic resins. Containing only synthesized fatty materials, this softener is said to be resistant to yellowing upon heating or aging, and is stable and non-volatile in high temperature heating ranges. Quaker Velvetol SS is said to impart surface smoothness without excessive limpness of hand. It may be used to give a smooth top finish on resin treated fabrics.

QUAKER VELVETOL RW
(Quaker)

A Sanforizing finish said to give rapid rewetting, efficient lubricity, and a slick, soft hand. Quaker Velvetol RW is a mixture of anionic softening and rewetting materials, comprising a tan, soft gelatinous paste. This Sanforizing finish is said to impart a smooth, soft, full hand as well as giving efficient rewetting action.

QUINDEX EMULSION BASE
(Nuodex)

A concentrated, emulsifiable form of copper-8-quinolinolate for use in equipment unsuitable for solvent solutions. An easy-to-handle liquid containing 10% ± 0.5% copper-8-quinolinolate, 1.8% ± 0.1% copper as metal, Quindex Emulsion Base forms a stable emulsion by simple stirring in water. No heat or emulsifying agent is required.

QUINDEX WR 10%
(Nuodex)

A new fungicide—water-repellent combination which will deposit copper-8-quinolinolate together with water repellents in a one-bath application. Contains 10% ± 0.5% solubilized copper-8-quinolinolate, 1.8% ± 0.1% copper, as metal. A liquid, Quindex W R 10% dilutes readily at room temperature.

REPELLO NFZ
(Scher)

A new zirconium type water repellent said to present ease of application with excellent results. It is stated that this finish will neither build up on the rolls, nor spot on goods, since it does not foam, and can be run in cold water when it is necessary to prevent color bleeding. Initial spray ratings of 100 per cent are said to be obtained on cottons, tackle twills, spun rayons, acetates, nylon, Orlon, and blends. Repello NFZ is a milk white liquid which is soluble in cold, warm or hot water. It is compatible with most finishing materials such as the urea formaldehyde resins. When used alone, the Repello NFZ is said to impart a soft mellow hand to the fabric. It will not develop odor, discolor, nor effect the tensile strength of the goods.

REPEL-O-TEX SW56
(Onyx)

Stated to be a highly efficient solvent type water repellent.

RESIPEL
(Scher)

A stable, white, pasty, thermosetting resin emulsion soluble in water combined with a zirconium type durable repellent in a single product imparting a firm to heavy hand to the fabric. It is applied in a one bath operation, and requires no catalysts or additional agents. Many other finishes are compatible with Resipel and, it is claimed, a most successful use has been its combination with the urea-formaldehyde resins to obtain durable crush resistance, repellency, and a firm hand in one operation.

RESISTEX-14
(Paisley)

Water soluble synthetic resin, which may be used with other products in a wide range of pH to increase repellency or assist to develop a tough, permanent, insoluble film. Colorless and odorless. Cures at comparatively low temperatures.

RESOPEL H
(Maher)

A combination of synthetic resins with inorganic salts to produce a hard, stiff finish that is said to be water repellent.

RESOPEL S
(Maher)

A combination of synthetic resins with inorganic salts to produce a resin finish with soft handle that is also said to be water repellent.

REXOBOND ET
(Emkay)

A resin gum mixture for finishing narrow fabrics and elastic webs. Said to give a noncurling finish.

REXOCLEAN X X
(Emkay)

A complete scouring agent composed of synthetic detergents, terpenes, and solvents. Contains 85% active matter. Recommended by the manufacturers as cleaner for stubborn oil and grease stains and for removal of nylon warp size.

REXODULL
(Emkay)

A carefully blended formulation of titanium dioxides and lithopone pigments. Readily mixes with gums, soluble waxes, hydrosulfite, albumen, and printing gums.

REXODULL DK
(Emkay)

A formulation of dispersed pigments recommended by the manufacturers as a dark shade duller.

REXOFOS
(Emkay)

A blend of phosphate powders for water softening and conditioning.

REXOGEL
(Emkay)

A purified gelatine base product recommended by the manufacturers as an economical stiff finish requiring no curing.

REXOLE
(Emkay)

A colloidal dispersion of soluble oils for softening and for plasticizing starches, gums, and gelatines.

REXOLE ESC
(Emkay)

An amino complex recommended by the manufacturers as a scroop finish for silk skeins and fabrics.

REXOLE G R
(Emkay)

A high gravity liquid product said to possess excellent moisture-retaining properties. Claimed to be an economical substitute for glycerine in plasticizing glues and gelatines, popular in the paper trade and allied industries.

REXOLENE
(Emkay)

A sulfonated base dispersing agent for acetate dyestuffs. Dyeing assistant.

REXOLUBE
(Emkay)

A lubricant and chafe eliminator stable in acid. Used in the diazotizing bath to eliminate chafes on developed black and navy colors.

REXONIT
(Emkay)

A resin gum finish containing plasticizers; and so treated that when used as a finish on rayon piece goods for stiffening, it is claimed that it will not mark off or dust out when a high concentration of finish is used.

REXOPON E
(Emkay)

An amide amino condensate synthetic detergent in popular strength. Claimed to be an efficient after-wash for prints, vats, and naphthols.

REXOSLIP
(Emkay)

An amino complex resin mixture said to impart weight and nonslip properties to rayon and acetate fabrics. Claimed to withstand aging and high temperature drying without discoloration.

REXOWAX CNN
(Emkay)

A water dispersible synthetic wax and resins claimed to combine in one product excellent nonslip, fullness and luster properties when used as a finish for rayon and acetate satins.

REXOWAX WS
(Emkay)

A mixture of waxes, plasticizers and fatty matter of good solubility in water. Used as a lubricant for paper yarn manufacture.

REZICOSE-425
(Morningstar, Nicol)

A dry product requiring no additives or softeners for sizing cotton or any of the natural fibers. Said to develop smooth, nondusting, low shedding warps at high level weaving efficiency.

ROSIZES
(Richmond)

A series of starch and resin compounds with specific ones for the slashing of yarns and back sizing of carpets.

SALICYLIC ACID, CRYSTALS
(Heyden)

Dye-carrier for Dacron to obtain deep, level light-fast shades in aqueous dyeing of this fiber with dispersed acetate dyes. (See also benzoic acid and 5-chlorosalicylic acid.)

SANOL #50
(Bryant)

Claimed to be an efficient wetting and rewetting agent. Recommended by the manufacturers as a finishing assistant for Sanforized finishes to ensure softness in the fabric. Said to be valuable as an assistant in tippy wool dyeing and also an efficient wetting agent in strong caustic soda solutions.

SAPIDAN-STR
(Pioneer)

A new synthetic scouring compound containing a favorably balanced ratio of special solvents recommended by the manufacturer for the scouring of all fibers especially to remove mineral oils, grease, and also rayon sizes.

SCOURBLEACH
(Richmond)

A combination scour and bleach for rayon, nylon, cotton and wool. It is not a complete bleach but is said to have the advantage of making brighter bottoms for dyeing in the scour.

SCOURWAX
(Fancourt)

A specially designed scour to remove wax and nitrogenous matter previous to dyeing straw. The use of this product is said to cause rapid and even penetration of dyestuff in the minimum length of time and to produce clear bright colors.

SEQUESTRENE
(Geigy)

Sequestrene is a metal sequestering agent said to sequester all metallic ions encountered in textile processing waters and fabrics. Available as the di, tri, and tetrasodium salts of ethylene diamine tetra acetic acid, and as a solution of the tetra sodium salt, it is said to be stable to the high temperatures of kier boiling and to a long exposure to high temperatures encountered in continuous boil off baths. It is claimed to be effective under all pH conditions utilized by the textile industry.

SEYCO 1728
(Seydel-Woolley)

One of a series of noncresylic mercerizing assistants, said to be effective over a wide range of caustic concentrations. It is stated that color is exceptionally light, and the product is perfectly safe to handle, eliminating the danger of serious burns which is present in cresylic base agents. No difficulties in use in mercerizing baths, and wetting time in caustic solutions is said to be very fast.

SEYCOL 66
(Seydel-Woolley)

A recently developed blend for pretreatment for Sanforized fabrics or for other processes where rapid and uniform rewetting is needed. While essentially a rewetter, Seycol 66 contains enough softener oils to be adequate for most purposes. It is stated that, where additional softness is required, it may be blended with sulfonated oils or similar products, enabling the finisher to achieve a variety of results and still maintain excellent rewetting qualities.

SEYCOPEN 49 LF
(Seydel-Woolley)

A penetrant, wetting and rewetting agent with very low foam value, especially designed for use with waters or under such conditions where foam is a nuisance. None of the wetting value of the Seycopen series is sacrificed to the nonfoaming characteristic. Seycopen LF is said to be an excellent assistant in the dyebath for shades which are difficult to level.

SILTEX GUM 263
(Onyx)

A print thickener especially adapted for aniline black.

SODIUM GLUCONATE, TECHNICAL
(Pfizer)

Sodium Gluconate, Technical is available as a stable free-flowing tan-colored crystalline powder possessing a pleasant odor. Its sequestering ability, particularly for the ferric ion, make it of interest to the leather industry in a recently developed iron-tanning process. It is also of utility in water treatment, and as a component in cleaning compounds, in water paste paints, and in photographic fixing baths.

SODIUM POLYACRYLATE
(American Polymer)

For producing a synthetic thickening agent. It is said to be stable, nonyellowing and nonmildewing. *Data Sheet P-27.*

SOFTEX 460
(Houghton)

An anionic substantive textile softener for cotton fabrics, cotton knitting yarns, cotton hosiery and spun rayons. Its ability to resist removal by washing is said to provide a finish of long lasting softness. It is claimed that mill use has proven that this product has a remarkably small effect on whites and on the fading of dyestuffs. Its even distribution through yarn packages makes it well suited for package dyeing. Softex is a soft, cream-colored paste, readily soluble in water and easily applied.

SOLIDOGEN WF POWDER
(General Dyestuff)

A new, straight, cationic fixing agent, which is offered for improvement of the wet fastness of direct dyeings on cotton, rayon and other cellulosic fibers. When used alone it is said to affect a considerable improvement in the fastness to water, fastness to perspiration, and fastness to wet hot pressing of direct dyeings with little or no change in shade, but generally with some impairment of light fastness. It is stated that, when used in conjunction with copper salt for selected colors the fastness to washing is improved, as well as the fastness to water, without any distinct impairment of light fastness, except in a very few minor instances, and with distinct or considerable improvement in light fastness in more than one-third of the dyestuffs recommended for after-treatment.

STANDAFIN #30
(Standard Chemical)

An economical water soluble resin finish for imparting firmness, fullness, and weight to all types of cotton and rayon fabrics. It is said to be stable under acid and alkaline conditions and to be compatible in the finishing bath with most finishing materials, such as anionic and cationic softeners, gums, dullers, water repellents, nonslip compounds, dye fixatives, urea formaldehyde, and melamine resins. It is said to impart excellent resilience with a minimum of mark-off, dulling, and shade change on dyed fabrics nor does it impair crockfastness. Used with urea formaldehyde and melamine resins, it is said to give greater fullness and improve abrasion and crease resistance. Application is made on conventional finishing equipment. No curing is required.

STANDAFIN T CONC
(Standard Chemical)

A semidurable water-soluble resin finish in the form of a clear, amber liquid especially designed to impart a dry, crisp, swishy finish to acetate rayon, taffetas, failles, etc. It is said to have excellent nonslip properties, no mark-off, and does not affect the shade or luster of the fabric. It dissolves readily in water to form a clear solution. Application can be made on conventional finishing equipment, such as a padder followed by drying on a tenter frame. No curing is required.

STANDAFON
(Standard Chemical)

A nonionic surfactant for soaping off vat and naphthol colors and said to give improved crockfastness and brighter, cleaner shades.

STANTEX* NSP #172 A
(Standard Chemical)

A new coning oil that is said to give excellent results on nylon tricot yarn sized with polyacrylic acid. It is said to provide good lubricity and antistatic properties and to have excellent stability and scourability. It is stated that the outstanding characteristics are elimination of size deposit or buttering effect on the roller bail in coning and low yarn running tension in processing while at the same time imparting pliability to the sized yarn. Good cone formation is said to be produced as well as good results in warping and knitting.

* Reg U S Pat Off

STYRENE-BUTADIENE LATICES
(American Polymer)

Raw materials for manufacture of textile finishes. Used for rug and upholstery back sizing. *Data Sheet P-24.*

SYNTHOLITE 180
(Synthron)

A new carrier and dispersing agent to facilitate the pigment dyeing of Orlon, Dacron and other synthetic fibers by the Thermosol process. The manufacturer says use of Syntholite 180 results in new degrees of light fastness, crocking resistance, penetration and eveness from selvedge to selvedge, especially on Orlon. The product is sold as a viscous solution that mixes easily with the dye liquor.

SYNTHOPEL 1 & 2
(Synthron)

A two-component, one-bath, semi-durable water repellent. Synthopel 1 is a concentrated anionic wax emulsion, easily dispersed in water. Combined with Synthopel 2, a clear liquid blend of polyvalent metal salts, the mixture is said to give durable repellency on synthetic fabrics (nylon, acetate, Orlon) and semi-durable finishes on cotton, wool or rayon. The manufacturer recommends the product for fine fabrics, where no stiffening is wanted and the finish is free from chalking. On open fabrics, a two-bath method frequently is used.

SYNTHOPEL WB
(Synthron)

An improved stable wax-alumina water-repellent. It is designed for easy application and use where the water-repellency may need to be renewed. A viscous white emulsion, it disperses readily in cold or warm water. The emulsion particles have a positive ionic charge and show some degree of substantivity toward cotton, wool and rayon. In addition to improved stability, the manufacturer says Synthopel WB gives maximum repellency and hydrostatic pressure and 100 spray ratings on mildewproofed fabrics. It can be used in a laundry or wet cleaning plant to provide initial or renewed water repellency.

SYNTHREZ S
(Synthron)

A thermoplastic resin dispersion for durable stiffening effects without curing. Synthrez S is a thick white fluid that is easily diluted in water. Applied on standard padding equipment, it is said to give durable firmness and body to any fabric with minimum markoff. It is stated that the finish is resistant to washing and drycleaning and can be used in combination with selected wax-alumina water-repellents and many other finishing agents.

"TERGITOL"* DISPERSANT TD
(Carbide and Carbon)

A polyethylene glycol alkyl ether, 100% active ingredient; Sp G, 0.999 @ 55°/20°C; solidification point, 25°C; Fl P, 205°F. (Cleveland Open Cup); odorless; opaque, heavily viscous liquid. A nonionic surface-active agent stable in acids, bases, and salts. Useful as a dispersant and emulsifying agent. Availability: research quantities.

* Trade Mark

TINOPAL ANA
(Geigy)

A new and unique optical bleach designed for use on acetate rayon. The new product is said to be distinguished by having a degree of light fastness, markedly superior to the whitening agents for acetate or any other fiber now in general use. Tinopal ANA is recommended by the manufacturers to be applied from a neutral bath at medium temperatures for about 20 minutes. The new product will, no doubt, prove valuable in improving the acetate white effects of viscose rayon, acetate fabric, dress goods and suitings, as well as increasing the brilliance of pastel shades since Tinopal ANA can be applied in the same bath with direct or acetate dyestuffs.

TINOPAL WGA
(Geigy)

A new optical bleach said to yield clear, true, wash fast whites free from objectionable pinkish cast on wool, nylon and silk. The product works most efficiently from a slightly acid bath, although by increasing the concentration slightly, satisfactory results can be obtained from a strictly neutral bath. It is also stated that Tinopal WGA will withstand peroxide bleaching and can in fact be incorporated right in the peroxide bleaching bath enabling better whites to be secured in considerably less time. Tinopal WGA has affinity for cellulosic fibers and consequently has been found useful for producing balanced whites on fabrics containing mixed fibers wool/cotton and wool/rayon.

TIPAGON
(Onyx)

A nonionic agent for dyeing tippy wool.

TITAPEN #2151
(Titan)

A new product of a special complex nature for use on any type fiber. It is used as a dyeing aid, detergent and scouring and fulling agent. It is said to be stable to hard water, acid and alkali. It is stated that lately it has been used in place of soap for fulling and cold scour and washing of woolens, worsteds and knit goods and in any fulling process, yielding clean goods, low grease content and is reported to save time and steam as compared with soap formulations. It is claimed that excellent reports have been receive from mills using this product on air force and army blankets and uniform cloth.

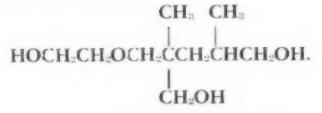
TRENISOL
(Alco)

A series of resin finishes developed especially for application to fabrics to impart increased hand and body. The use of the finishes enables the designer to construct fabrics of lower cost, which when Trenisol-finished, it is claimed, will still have the appearance, durability, abrasion resistance and light fastness of far more expensive fabrics. The finishes are supplied for use in spraying, coating or impregnating and may also be used in backfilling as binders for starch and talc.

TRINOLEX
(Commonwealth)

An alkyl aryl sulfonate containing 84% active ingredients. This product has a detergency value of 48%, is an homogeneous white solid, and in a Draves wetting out test in 2% solution at 25°C is said to show a result of 4 seconds. This product was designed as a scouring agent for animal, vegetable, and synthetic fibers and is said to be quite useful in the removal of synthetic resins from hosiery dye nets.

TRIOL 230
(Carbide and Carbon)



M W 206.28; Sp G, 1.081 @ 20°/20°C; B P, 196°C (5 mm); V P, <0.01 mm Hg @ 20°C; Fr P, sets to a glass below -5°C; Visc, 6872 cps @ 20°C; R I, 1.4767 @ 20°C; Fl P, 393°F (Cleveland Open Cup); Miscible in all proportions with water at 20°C; Color, water-white. Chemical properties: Has three primary hydroxyl groups that may be esterified easily. Uses: plasticizer for casein, zein, and other water-soluble resins; softener for cellophane, suggested for use as a solvent and coupler in textile dyes. Availability: semi-commercial quantities.

TRIOPEL
(Burkart-Schier)

A single-package, single-bath, durable water repellent. It is applied in the usual manner and requires no special curing or drying treatment. It is stated that it has good resistance to washing and dry-cleaning and is suitable for cottons, rayons and synthetics.

TRYLON B
(Arkansas)

Trylon B is primarily a finishing agent for light fabrics particularly acetate tricot, for the purpose of imparting a full-bodied mellow hand. It may be used to advantage with cationic finishes such as Paramine TA where additional body is required. In physical appearance, Trylon B is a viscous almost colorless liquid, which is readily soluble in water at all temperatures. The pH range at the usual working concentrations is from 2.6 to 2.8 and being acid, is not compatible with anionic finishes such as, sulfated oils. However, it is compatible with practically all types of cationic and nonionic finishes.

UVITEX RS AND UVITEX RBS
(Ciba)

Fluorescent bleaching agents which produce improved white effects on cotton, viscose rayon, linen, hemp fibers and paper. The whites obtained are said to exceed anything attainable by chemical bleaching alone, and pure pastel shades can be produced on unbleached or not fully bleached material.

UVITEX RT
(Ciba)

An optical bleaching agent for cotton, viscose rayon, wool, silk, nylon and paper. It is said to be distinguished by its good fastness to washing and light, and withstands the crease-resist and anti-shrink finish. For brightening pastel shades, Uvitex RT can be added to the dye-bath; or in printing, to the discharge or printing-on color.

VARKON FP
(Arkansas)

A sequestering agent which is said to be highly efficient for the purpose of chelating metallic ions such as calcium, magnesium, and iron. It is particularly useful for correcting severe hard water conditions and, for this purpose, works best at a pH of 7.5 or above. For sequestering iron or other heavy metals, which may occur as contaminations in wet processing, this product is most efficient on the acid side at a pH of 6 or lower. Varkon FP contains approximately 100% active ingredients, and is a free flowing homogeneous powder. It is highly soluble in water at all temperatures, and solutions of this product have excellent stability.

VELGLOW
(Standard Soap)

A new finish especially adapted to Sanforizing. It is stated that it is instantly emulsifiable in cold water and imparts a smooth soft hand and a calendered appearance. It is claimed that, using Velglow, a finish equal to that obtained with a rubber blanket may be had with the regular blanket. It is further claimed that maximum shrinkage can be obtained with a lighter weight blanket. It is said to lubricate the material allowing it to enter under the Sanforizer shoes without rippling, thereby allowing greater speed.

VERSENE S
(Bersworth)

It is stated that this product is quite similar to Versene T in that it will complex iron very efficiently in caustic solutions of any concentration but differs from Versene T in that it will complex iron very effectively in the lower pH range. It will not, however, complex calcium, magnesium, or some of the other common divalent metals. This product, it is stated, has found specific application in the kier boil and mercerizing processes in which the tanks are lined with magnesium silicate to prevent corrosion of the underlying steel since it will not complex this metal.

VIBRALON J-44
(Fancourt)

An emulsion designed to lubricate and prevent fusing and wrinkling of nylon hosiery when dried in piles on conveyors with circulating hot air.

VIBRALON NYLONEX
(Fancourt)

A dispersible solution of du Pont's Nylon type 8 used for finishing nylon hosiery, knit or woven fabrics with conventional mill equipment. This product is also used in conjunction with suitable resins and delustrants for dulling nylon hosiery.

VINYL CHLORIDE COPOLYMER LATEX
(American Polymer)

(Polyco 446). Said to be clear, flexible, nonyellowing and age resistant for use in printing and coating fabrics. *Data Sheet P-32.*

VITESSE
(Paisley)

Highly concentrated, prepared warp sizing product for all types of pre-dyed filament yarns; said to be especially suitable to yarn dyed fabrics with comparative repellency. Rapid drying assures of high sizing speeds.

WAPACO SYNTHETIC 150
(Watson-Park)

A liquid alkylarylsulfonate which is said to be an excellent detergent and wetting agent, useful for scouring, dyeing and kier boiling.

WOONCO 400-A
(Woonsocket)

A concentrated synthetic cationic softener for woolens, cottons, rayons and acetates. It is an amino complex of stearic acid and is supplied in a paste form. It is particularly recommended by the manufacturers in the softening of hosiery. It is applied in the last wash after dyeing and has no adverse effect on the light fastness of the colors. Woonco 400-A can be applied to fancy woolen and worsted fabric in the washer. It will not produce an odor in the fabric and its permanent softening action is claimed to make it far superior to the former anionic softeners.

WOONCOPEN GW
(Woonsocket)

A new nonionic synthetic detergent of the fatty amine condensate type. It is recommended by the manufacturers as a wetting and rewetting agent and is said to be invaluable as a dyeing assistant to insure level dyeing. The manufacturers claim that tests have shown Wooncopen GW to be one of the most outstanding wetting and rewetting agents known in a slightly acidified bath.

EQUIPMENT

BOXEAL
(Paisley)

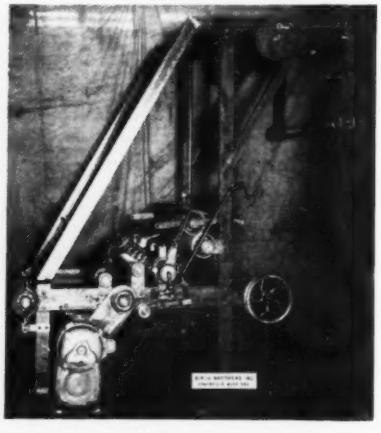
An economical replacement for gummed tape. Reduces tendency toward pilferage since cartons sealed with it may not be opened without evidence. Technical service Bulletin #22 gives full details.

OPEN WIDTH VACUUM EXTRACTOR
(Birch)

The improved 1950 model is equipped with a patent re-enforced adjustable slot vacuum extracting box fitted with Birch's automatic ring type slot seals. The machine is also fitted with adjustable tension let-off, spiral opening rolls, and rubber-covered draw rolls.

It is arranged to handle cloth from a fold or roll and to deliver the cloth folded on to a truck or on a roll. This latter arrangement is of the center wind slip belt type.

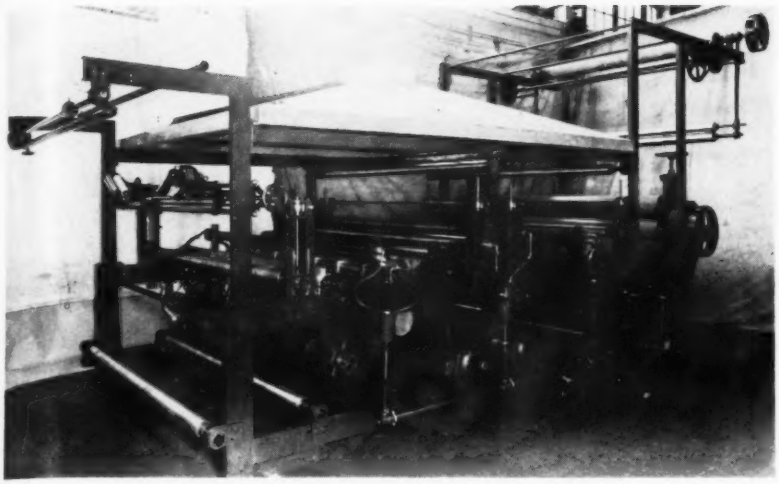
The machine reportedly gives uniform extraction without damage to the fabrics, that is sometimes caused by heavy squeeze rolls. It is said to leave the fabric with a better and loftier "hand" than when squeeze rolls are used. Very excellent results are being obtained and the amount of moisture left remaining in the fabrics, in most instances, is less than when squeeze rolls are used, the manufacturer states.



Birch Open Width Vacuum Extractor

This machine is designed for use where it is desired to have the vacuum extracting process a separate operation. It reportedly may be used on all types of fabrics including woolens and worsteds, pile fabrics, rayon, and rayon blends, and cottons, with excellent results. The reported speeds at which the machine is ordinarily operated are from 25 to 45 yds per minute on woolens and worsteds and pile fabrics; from 50 to 80 yds per minute on rayons and rayon blends; and from 50 to 150 yds per minute on cottons. The remaining moisture on cotton fabrics is said to be approximately 50% to 60% based on the dry weight of 100%. When used in connection with a pair of medium squeeze rolls, this extraction is said to be improved still further.

The drive is by a motor through a variable speed unit. The pump unit consists of a motor and Nash vacuum pump mounted on a heavy metal base.



Birch 4-Burner Horizontal Singeing Machine

FOUR-BURNER HORIZONTAL SINGEING MACHINE
(Birch)

This machine is said to process worsteds, woolens or blended fabrics at variable speeds of 42 to 128 yards per minute by means of four adjustable open flame gas burners with two burners operating on each side of the cloth so that both sides are singed in one run. These burners are reportedly equipped with fire checks, index cocks, and an industrial carburetor for mixing gas and air in correct propotion and maintaining a constant gas pressure. The gas line is said to be equipped with a solenoid-operated valve to shut off the gas when the electric power is shut off. The burners are equipped with electric ignition.

The singer is also equipped with air guiders, brushes for removing lint and ash with suction boxes and blower, and a smoke hood and overhead fan. Water-cooled guide rolls follow each burner and delivery is by an overhead folder.

DESIGN IMPROVEMENT IN "TAG" NONINDICATING CONTROLLER
(Weston)

An important improvement in the design of the "Tag" nonindicating controller for temperature-pressure. A lock on the cover of the instrument for "locking in" control point settings is aimed at eliminating financial, labor and time losses which might be caused by unauthorized persons who willfully or accidentally change control point settings.

The control setting mechanism is a spindle with a slotted tip placed entirely behind the locked cover of the case. Adjustment of the control is made by unlocking and removing the cover, inserting a screw driver in the slot of the spindle, and turning in the desired direction. Once set, the control is locked in by replacing and locking the case cover.

The instrument, known as Model 8352, Type 1, features a cover lined with a rubber gasket. It is available for either direct or reverse acting control applications, and operates on the same principle as the previous "Tag" model. Measurements are 5¾ inches by 7¼ inches.

TEKTOR LEVEL SWITCH
(Fielden)

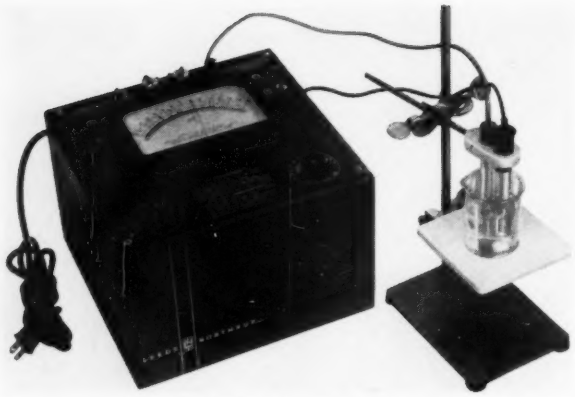
This switch is said to make possible level control of practically all liquids and solids. Liquids may be of high or low viscosity and may have electrical conducting or insulating properties, it is stated.

No electrical contact is necessary with the material under control, it is pointed out. The equipment does not rely on floats, diaphragms, or any moving mechanical parts.

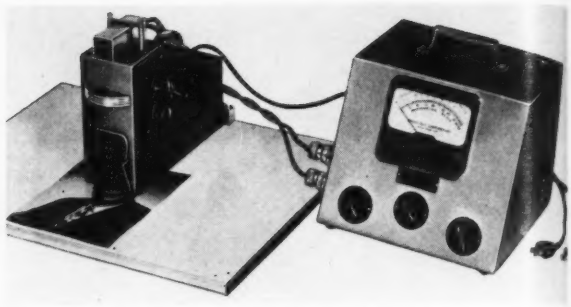
Model AJ-1 Tektor is housed in a dust-tight, splash-proof, die-cast aluminum box, 6½" x 7½" x 4" deep, with screw-on cover, it is reported. The electrode, connected to the instrument through a two-foot length of cable, consists of a simple probe, 4" to 6" long, ¼" to ⅜" in diameter, which is inserted into the container at the level at which control is required.

A level differential of 1/32" up to ⅜" reportedly may be obtained. The probe may be insulated or not, depending on the application. For some applications the sensing element may be flush with the inner surface of the container. Other models of Tetkor Level Switch apply to special conditions, such as frothing.

"Tag" Model 8352, Type 1 Controller Showing New Lock Cover



Photovolt Reflection Densitometer



Photovolt Reflector Densitometer

LINE-OPERATED pH INDICATOR AND VACUUM-TUBE VOLTMETER
(Leeds & Northrup)

This product is said to be unaffected by normal fluctuations in line voltage or by zero drift of the amplifier. A converter-type instrument, its circuit reportedly employs d c to a c conversion, a c amplification, and conversion back to d c for voltage feedback. Conversion stabilizes zero; feedback stabilizes gain.

Used as a pH Indicator, the instrument reads directly in pH; reportedly makes glass electrode measurements to within ±0.02 pH on grounded or ungrounded solutions. Continuous pH 0 to 14 scale is said to eliminate range-changing. For manual lab use, temperature compensator is graduated from 0 to 100 C in 2 degree steps. If the instrument is used as a continuous indicator on industrial process pH, automatic temperature compensation can be provided, it is reported.

As a Vacuum Tube Voltmeter, it is claimed that the new indicator can be used with any high or low impedance electrode system which develops potentials within the range of the instrument. External circuits can have up to 2000 megohms resistance, the company states, and current drain does not exceed 1×10^{-12} ampere at null balance. Four additional voltage scales of 0 to +700, 0 to —700, 0 to +1400, and 0 to —1400 millivolts are available for redox, potential, and polarized current measurements.

ECO PUMPS
(Eco)

Stainless steel positive displacement pumps said to be suitable for inks, dyes, emulsions, glues. It is stated that they will pump without foam or aeration and will prevent pipe line corrosion. Capacities available range from 1 to 10 gpm and pressures to 100 psig. They are available from stock with Teflon, Micarta or synthetic rubber impellers.

FIVE TANK OPEN WIDTH SCOURING AND WASHING MACHINE FOR RAYON BLENDS
(Birch)

This machine is of stainless steel construction with rubber squeeze rolls to which the pressure is applied by air cylinders. The final squeeze is said to be of a 30,000 pound capacity for extracting purposes. The machine is equipped with devices for removing wrinkles and double edges, sprays and bath agitation for speeding up the washing or scouring processes.

The drive is by D C motors on each nip so as to give variable speed and uniform tension throughout the machine. The motor rheostats are controlled by dancer rolls in the tanks.

BALL BEARING TURN TABLE
(Birch)

This 48"-diameter Turn Table, made of structural steel, is for use in mills where the cloth is delivered in the rope form to the trucks after which they are placed in position ahead of a scutcher or cloth opening machine.

By the use of the Turn Table, which revolves very freely, the operator is reportedly able to keep the cloth free from twists going to the scutcher, thus eliminating much of the strain on the cloth and the tendency of the cloth to run to one side. It also is said to make for easier opening of the fabric, free from wrinkles.

This table, in addition to the 48-inch size, is made in all sizes as may be required, the company states.

Birch Turn Table

REFLECTION DENSITOMETER
(Photovolt)

This unit, a combination of Photovolt's Reflection Density Unit and the Spot-Photometer, permits color analysis on small areas of color reproductions and of other materials with color patterns, such as textiles (among various other applications). The Electronic Spot-Photometer, itself, is a light-measuring instrument of high sensitivity for light measurements on small areas in the focal plane of cameras (e g, for focal plane readings in photomicrography).

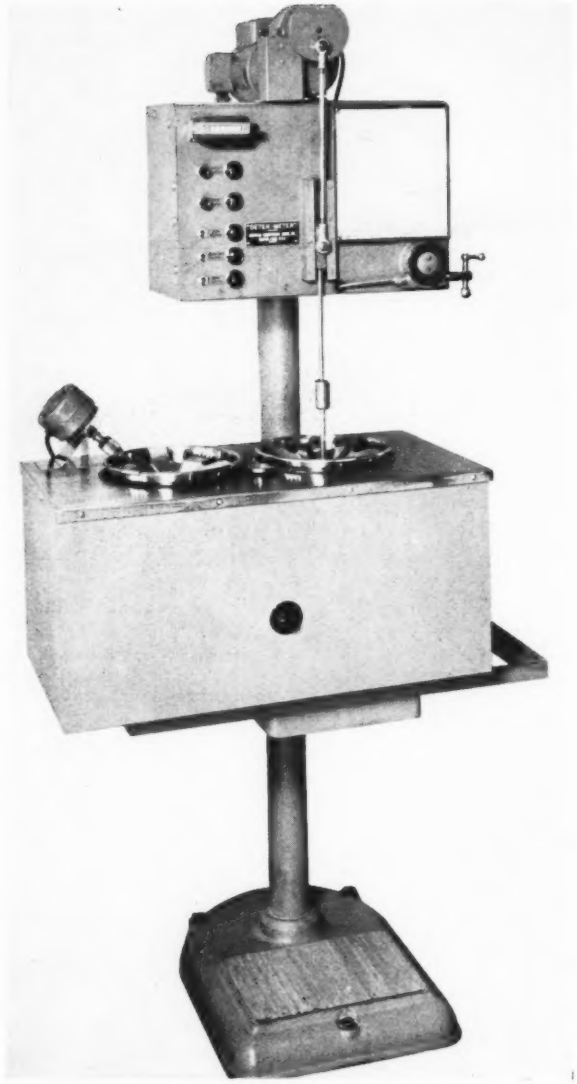
All results are obtained as a needle indication on a meter scale. The manufacturer points out that the readings are, therefore, independent of individual judgment and reproducible from one operator to another. Eye strain is reported avoided in using the Densitometers; they can be operated in well-lighted rooms while densitometers of the visual type mostly require subdued light. The operation is said to be simple and does not require any particular care or training on the part of the user.

DETER-METER* DETERGENCY TESTER
(American Conditioning)

A precision instrument for the measurement and study of detergency. Based upon a new concept for supplying energy to the cloth-detergent system, this instrument is said to provide testing precision hitherto considered unobtainable. Test procedures are straightforward and significant economy in man-hours spent on testing may be realized, it is stated.

In the field of fundamental detergency research the Deter-Meter Detergency Tester reportedly provides washing with non-random mechanical action, thus making it possible to investigate washing-energy relationships. It may be set at energy input levels to approximate most commercial washers. Accelerated testing may be performed at time-saving ratios as high as ten-to-one, the manufacturer states.

* Trade Mark, Patent Pending



"Deter-Meter" Detergency Tester

VALVE DIAPHRAGM

(Grinnell)

The Grinnell Company has developed the Grade K "Kel-F" Diaphragm for Grinnell Saunders Valves. Kel-F, the registered trade-name for polytrifluorochloroethylene, a stable thermoplastic, is said to be chemically inert to all acids and alkalies in all concentrations with the exception of molten alkali metals. In order to provide the necessary softness and flexibility, these diaphragms are plasticized 25 per cent. Inasmuch as the plasticizer itself is a low molecular weight Kel-F, it is stated that the corrosion resistance of the material is not impaired, as is often the case with a plasticized material. The Grinnell Grade K diaphragm is not recommended for abrasive service nor cold operating conditions (under 20°F). Although low temperatures do not harm Kel-F, the manufacturer states, it is stiffened sufficiently to impair its flex life.

In addition to acids and alkalies, Grade K diaphragms are reported to be giving excellent service handling hydrocarbons, esters, ketones and various chemical combinations which had proved troublesome with other valves and which could not previously be handled satisfactorily by Grinnell-Saunders valves. Maximum temperature recommendation should not exceed 300°F, it is stated, diaphragm life depending upon temperature, pressure and frequency of operation as well as corrosive conditions.

Grade K (Kel-F) diaphragms reportedly can be used with all Grinnell-Saunders valve designs. On bonnets not previously adapted for Kel-F use, the complete Kel-F assembly (consisting of stem or spindle, compressor, backing cushion and diaphragm) can readily be substituted for standard parts, it is reported.

A patented floating tube nut design is said to contribute largely to successful operation. Kel-F itself, even in the plasticized state, is not resilient. As a result, there might be a tendency for the head of the diaphragm stud, which is embedded in Kel-F, to cut the Kel-F when the valve is tightly closed. This possibility reportedly is minimized by the floating tube nut design which is said to automatically compensate for any concentration of closing forces and to distribute these forces evenly over the entire weir area. The moulded synthetic rubber backing cushion absorbs the closing shock, cushions the Kel-F against compressor cutting, imparts the necessary resiliency to the assembly which is lacking in Kel-F alone and supports it in the open position, it is pointed out.

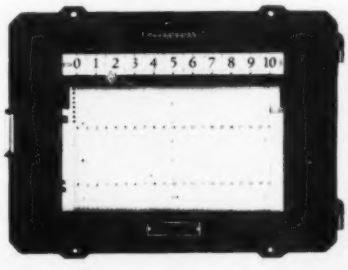
The screw driver head of the tube nut is free to float in the slotted base of the stem (spindle), permitting the important floating action and at the same time allowing diaphragm replacement following standard procedures.

STRETCH METER

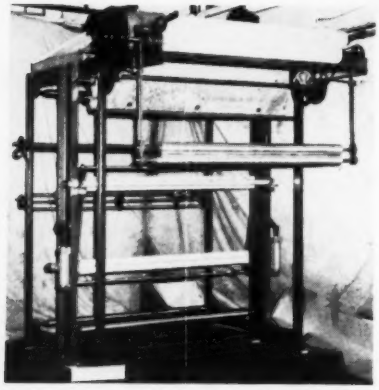
(Weston)

The pecentage stretch or shrinkage of materials being processed through pairs of rolls turning at different speeds is indicated and automatically recorded by the new Tag-Weston recording speed-ratio tachometer. The instrument provides a continuous record of roll speed ratio.

Operated by two Weston Model 724 tachometer generators driven by the respective rolls, the new instrument consists essentially of a specially developed Tagliabue Model 47001 Celectray ratio recorder. The ratio meter and recorder reportedly can be calibrated in per cent stretch as in yarn processing, inches per yard shrinkage as in fabric Sanforizing, percentage reduction as in metal rolling, or other units which are a function of the speed ratio between two rotating members.



Weston Stretch Meter



Birch 2-Burner Vertical Singeing Machine

TWO BURNER VERTICAL SINGER
(Birch)

This completely ball-bearing unit consists essentially of an adjustable tension device, air guiders (optional), guide rolls to guide the cloth between burners, and a solenoid-controlled pneumatic cloth deflector to move cloth from burners during stopping. When starting, the deflector is thrown in electrically.

The burners are of the radiant-flame type and are adjustable to control degree of singe. Fabrics may come to the machine either in rolls with batch let-off or in trucks.

The drive may be either constant or variable speed. For worsteds, tropicals, etc, the machine is said to offer constant speeds up to 100 ypm with brushes or beaters in ash collector for removing ash, and swing folder; for cottons and rayons, variable speeds (90-360 ypm) with quench box and overhead delivery wheel.

DRIMETER CONTROLLER
(Fielden)

A new automatic controller for the Fielden Drimeter to provide continuous indication and record of oisture content in warp or cloth and to automatically control the slasher or drier to correct any deviation from the desired moisture content.

The equipment reportedly may be used on any type of slasher or fabric drier. It is said to be simple to install, and cannot be damaged by incorrect adjustment of the preset timing controls.

The control is designed to ignore wet seams or momentary wet patches and to make corrections, which are proportional to the deviation from the desired moisture content at time intervals that are automatically adjusted to suit the machine speed. Close control of moisture content is said to be provided, usually within ± 1¼%, without hunting, on any weight of warp or cloth at any machine speed.

Push buttons for manual control are reported to be provided on the instrument panel and may also be installed elsewhere. Pilot lights indicate when moisture is within tolerance limits, too high or too low, and when a correction is being made.

Price, including recorder, timing panel, tachometer, and control relay is listed as $1250.

MOISTURONIC METER
(Weston)

This portable meter for measuring moisture content, known as the Tag Moisturonic Moisture Meter Model 8008, features an overall range of from 2,000 ohms to 20,000 meg-ohms, a considerable greater span than afforded by previous models, as well as a larger scale for greater ease in reading. The instrument reportedly can be used with any material capable of accommodating electrode probes.

Operating on the resistance principle, the Moisturonic is said to give accurate, instant moisture readings directly on wide, clear "double-range" scales. The instrument is available in two forms: one with a scale calibrated for specific uses (outside the textile field), and the other with linear graduations for use with materials for which no calibrations have been determined, which may be applicable to textiles.

Weston Moisturonic Meter

The all-purpose version of the Moisturonic, with linear scale, reportedly can be used to establish special calibrative data and to test other materials of whatever consistency or texture into which electrodes can be inserted. The linear scale has uniform graduations from 0 to 100, shown in black and from 100 to 200 shown in red. Not graduated in per cent moisture, it is designed to permit manufacturers and processors to use the linear scale against their own standards to establish tables for a broad range of materials in which moisture content is a consideration.

Both versions of the Moisturonic are available as either battery operated for use anywhere, or are furnished to operate on 115 volts, 60 cycles a-c.

WET STEAMING MACHINE
(Gessner)

A new double cylinder wet steaming machine with a long brush for face goods. The machine is equipped with 36" stainless steel cylinders and means for cooling fabrics after their steam setting.

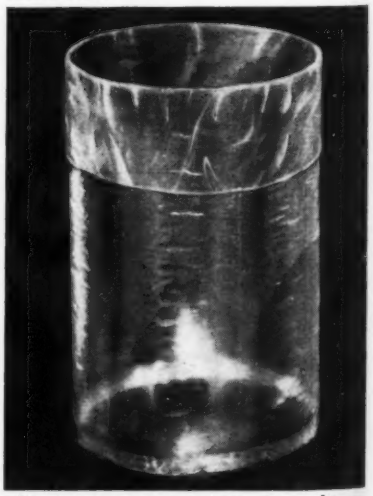
SOILED CLOTH ACH NO 130
(American Conditioning)

A new soiled test cloth designed for use in the laboratory and for single wash use in the laundry. By a careful study of the basic nature of the components that make up a useful test fabric, the manufacturer states, it has been possible to develop a soiled test cloth that is equally satisfactory for turbidity and reflectance type measurements. This cloth is said to be unique among aqueous soiled test fabrics because of the new soiling technique employed which reportedly suppresses any tendency toward selective synergism. The spread between washed and unwashed reflectance is said to be in the range of 35-45 reflectance percents.

DRUM LINER
(Enley)

Enley Products Co produces a polyethylene drum liner that is now electronically sealed, which, they state gives a tremendous efficiency advantage over older methods of heat sealing.

In order to save waste of products between folds or creases in the bottom of liners, Enley has developed a round contoured bottom. A dou le bottom and double rim are provided for extra protection against cuts or tears. One of the most flexible features of the Liner is the fact that it may be removed, folded and stored for future use. Loss of valuable liquid is also avoided due to this removeable feature.



Electronically-sealed Enley Drum Liner

HIGHLIGHTS OF THE LAST YEAR

P J WOOD

Technical Director,
Royce Chemical Company

FIBERS

THE COTTON CROP——According to the Crop Reporting Board, Bureau of Agricultural Economics of the United States Department of Agriculture, cotton farmers in the United States planted 29,510,000 acres during 1951. This compares with 18,613,000 acres planted in 1950, an increase of 58.5% on the acreage planted last year. The official acreage target was 28,500,000 acres, with the government stressing the importance of planting as much cotton as possible because of last year's small crop. The acreage planted in 1951 was the largest since 1937, when it slightly exceeded 34,000,000 acres. The average planting for the years 1940-1949 was 22,163,000 acres.

The indicated crop, as of August 1, was 17,266,000 bales against 10,012,000 for last year and as compared with 12,030,000 for the 1940-1949 average. According to these figures, cotton should be plentiful and cotton seed should be in good supply, which indicates that cotton seed oil should also be abundantly available.

SYNTHETIC FIBERS——In 1950, an announcement of a new type of nylon appeared in a foreign journal. The fiber, called "Grilon", was said to be made from a polyamide based on phenol called "Lactam". Since that time, we have seen no further mention of it.

In the same journal it was stated that two new fibers from Germany were due to be imported into the United States, namely "Ianusa" and "Cuprama". These were said to have the insoluble pigment incorporated into the fibers during manufacture, giving unusual color fastness. The cost of these fibers landed and duty paid was quoted at 45¢ a pound. (Precolored rayon was made by the Woonsocket Rayon Company 17 or 18 years ago, but never became very popular).

DYNEL——Production of several million pounds annually of Dynel, a vinyl chloride-acrylonitrile polymer, was begun in January of this year, although it had been in limited commercial production since July 1950. A further increase of capacity was made this past June. The price of this fiber is $1.25 pound, which puts it in a good competitive position. Its qualities of warmth, good wet and dry strength, resistance to combustion, mildew-proofness,

P J Wood

moth-proofness and resistance to chemical action combined with good dyeing properties should assure ready acceptance in many branches of the textile industry.

TERYLENE——This new synthetic fiber (one ingredient of which is terephthalic acid), was discovered by two employees of the Calico Printers' Association, Winfield and Dixon, in 1940. It has been made on a pilot plant scale by Imperial Chemical Industries, Lancashire, England, who have turned out several hundred tons. A new plant is now being built at Wilton, Yorkshire, where ICI has a catalytic oil cracking plant for the manufacture of the raw materials. It will have a capacity of almost a million pounds a month.

Terylene, which is unlike any other synthetic fiber, is said to be twice as strong as cotton and to have very little stretch. Like nylon, terylene can be heat-set to assure dimensional stability and is not susceptible to attack by moths. It is affected very little by acids. Initially it was difficult to dye, but this has been substantially overcome. Fabrics made from spun terylene are somewhat similar to wool in appearance and feel and can be blended with wool and all other natural fibers.

ICI has purchased from the Calico Printers' Association manufacturing rights for the entire world, with the exception of the United States.

NYLON——In June of this year, the Chemstrand Corporation was licensed by E I du Pont de Nemours & Company, Inc to manufacture nylon. A factory for the production of nearly a million pounds a week of this fiber is being erected at Pensacola, Fla. It is expected that this plant will be in full production in 1953.

ACRILAN——This new polyacrylonitrile fiber is being made by Chemstrand at Marcus Hook, Pa, in a pilot plant, which is turning out about a million pounds of staple fiber annually. At Decatur, Ala, this company is building a plant for a capacity of 30,000,000 pounds a year, commencing next April.

Acrilan is unique among synthetic fibers inasmuch as its specific gravity is 1.135, the lowest of all textile fibers. It is soft, warm and very bulky and its wet strength is only ten per cent lower than its dry strength. It has excellent resistance to mildew and moths. It can be used alone or in combination with wool for making apparel, blankets, etc. According to tests of heat loss through woven and knitted fabrics of Acrilan, it seems to have the same thermal insulating properties as wool.

PRELIMINARY TREATMENTS

NYLON——What appears to be a very interesting development in the field of crease-proofing nylon fabrics is revealed in U S Patent 2,540,726 (du Pont, Graham Schupp). It consists essentially of the well-known heat treatment followed by exposure of the fabric to the vapor of formaldehyde at 100°-250° C, in the presence of an acidic catalyst of a pH below 3.0. In addition to providing crease-proofness, this treatment is said to improve the affinity of nylon for acid dyestuffs.

The feeding of synthetic fabrics into the setting or boil-off bath has always presented certain difficulties due to the formation of creases and uncontrolled shrinkage. A device patented by the Fair Lawn Finishing Company for feeding fabrics under controlled conditions into the boil-off machine, under the surface of the liquor, seems to offer relief from this problem.

The problem of eliminating the chemicals used in the setting and boil-off bath is said to have been solved by an apparatus used in tandem with the festoon type of boil-off machine. The goods are squeezed on emerging from the festooning tank and the expressed liquid is returned to the tank, after which the goods are thoroughly rinsed in a vertical washing tower, squeezed again and either rolled up or plaited down in a truck.

DYEING

CONTINUOUS DYEING OF LOOSE STOCK——This seems to be possible with a new type of machine in which the stock is carried in a thin layer by endless stainless steel conveyors through a very small volume of dye liquor, to which chemicals and dyestuff are fed automatically and continuously. Having seen a photograph of the machine, it seems to this writer that the cleaning of the apparatus should not be too difficult. It should be adaptable to the dyeing of warps, both in chain and beam form. It is claimed that the machine can also be used for wool scouring and for the application of chemical baths.

The speed of the machine can be varied for an impregnation of from 30-90 seconds, which should make it satisfactory for the dyeing of vat, vat ester and azoic colors.

The only other machine that was at all similar to this was a continuous cotton sliver dyeing machine made in England by Mather & Platt some 50 years ago. In those days, the quick dyeing modern dyestuffs were not available, so we doubt that it ever became very popular. It was very long and complicated, as we remember the pictures of it, and it must have been rather slow.

HOT OIL DYEING——This process seems to be well past the experimental stage. We are informed that considerable quantities of goods have been successfully handled by this method.

MOLTEN METAL DYEING METHOD ——Up to the present, we have not yet heard of any installation of this type of dyeing being undertaken here. A very interesting eye-witness account of the working of this process was delivered by Francis S Richardson at one of the technical sessions at the recent AATCC Convention.

DYEING MACHINE IMPROVEMENT ——Dye reels are usually covered with cotton cloth to provide the necessary traction and to prevent slipping and consequent chafing of the fabrics being dyed. The necessity for frequent changing and/or bleaching of the reel covers is said to be eliminated by the use of a new Orlon fabric of special weave designed to give maximum traction. The Orlon cloth absorbs little or no color, permitting a quick change of shade without the need of stripping the covers.

WARP DYEING——A new automatic warp piler, which can be fitted to any type of chain warp dyeing machine, makes it possible to fill the box truck evenly and prevent the warps from falling over and tangling. It is said that the installation of this attachment makes it possible for one operator to take care of two machines without any difficulty. We understand that this attachment is working successfully in many warp dyehouses in England, where the device is made.

DRY-CLEANING

A new invention, which is revealed in U S Patent 2,523,304, entitled "Conveyor-type Washing or Dry-Cleaning Machine", appears to be destined to convert the operation of dry-cleaning from a batch to a continuous process.

FINISHING

PRESHRINKING OF WOOLENS——A new machine for the preshrinking of woolen goods, evidently to take the place of the so-called "London Shrunk" process, invented by W S Emerson and made by Associated Mill Products, Ltd, of London, has been tested and is said to have proved effective. It is claimed that over a million yards of all types of woolen goods have been processed successfully on the first machine made. The goods are treated in a relaxed state in the steaming section and dried in the same condition by means of infra-red units. Production of 700-1000 yards per hour is possible, depending on the type of goods. After drying, the cloth is cold-set by high velocity air impact. The cost of operation in England is about one halfpenny per yard, rather less than one cent. The old method took days to complete, in some cases.

CONTROL OF SHRINKAGE IN FULLING WOOLEN GOODS——Use of an attachment designed to be used on the fulling mill, which is the subject of a patent granted to E B Bates (British Patent 644,649), should provide more accurate control of the degree of shrinkage in fulling. The device checks the progressive reduction in length of the piece as the fulling operation proceeds, thus giving an indication of the proportionate increase in weight per yard.

COATING THREADS WITH PLASTICS——British Patent 645,727 proposes a method of coating threads with plastics (e g, vinyl polymers dissolved in solvents, such as methyl ethyl ketone or acetone, or in aqueous suspension) by passing the impregnated thread through a device without rollers, in which the squeezing out of excess finish is accomplished by passage through a bath of mercury, after which the thread is dried.

This ingenious procedure is strongly reminiscent of the "Standfast" process of dyeing, which employs molten fusible metal in somewhat the same way, with the exception that the mercury bath is not heated. Apart from the hazard involved in the use of mercury, this method appears to have possibilities.

PRINTING

CONTROL OF REGISTER IN MACHINE PRINTING——In British Patent 645,782, a description is given of a new device for controlling the register of printed patterns by adjustment of the fitting or box gear by means other than the conventional "tommy bar". If this device is found to be practicable, it should eliminate many accidents and make it easier for future apprentices to learn the art of printing.

SCREEN PRINTING——Early this year, a new screen tensioning machine was announced for constructing a better printing screen. It is said to be possible to produce screens with perfectly stretched fabrics, without creases and having no tendency to distort the frame.

A new type of automatic screen printing machine has been announced in which the goods, adhering to an endless belt, are carried under a frame carrying the printing screens. This frame is hinged to one side of the table, the other side being free. A system of double squeegees provided with automatic color-feeding devices supply the color at the end of the stroke of the squeegee, which is actuated by means of a piston driven back and forth with compressed air. At the end of the printing application, the frame carrying the screens is lifted on the open side by an arrangement of cams acting automatically, and simultaneously, the belt moves forward to carry away the printed cloth and place another length of unprinted cloth for the next printing impression. The printed cloth is dried by banks of infra-red lamps located above the table.

PHOTOGRAPHIC PRINTING——According to British Patent 653,698, (Calico Printers Association, F I Sherwood and W S Miller), it is possible to produce multicolored photoprints on textiles by sensitizing the fabric with suitable chemicals and exposing successively (imposing three negatives of the primary colors) to the action of red, yellow and blue light.

Another method of photographic printing is revealed in U S Patent 2,531,086, which describes a novel method of printing in which the fabric is impregnated with a water soluble dye, which is insolubilized on exposure to light. After exposure, the part of the fabric that has not been exposed is cleared of the still soluble color by washing.

TESTING METHODS

Experiments carried out by Dr Pauline Beery Mack and associates at the Ellen H Richards Institute, were undertaken to check the results of actual wear tests of fastness of dyed colors to perspiration as compared with various methods of evaluation. These showed that the glass plate method recommended by the perspiration committee of the AATCC Research Committee predicts

with reasonable accuracy the perspiration damage incurred during actual wear.

A new form of apparatus for testing the wash fastness of dyed colors is described in British Patent 653,657 (J R Geigy A G, Basle). The device simulates the action of the old fashioned corrugated washboard. Means are provided for heating the bath to the desired temperature, a series of shafts cause a reciprocal action of the rubbing elements, which traverse the sample to be tested, and the latter is stretched across the corrugated base set at an angle under the surface of the scouring liquor. It is said that this same apparatus can be used to conduct fulling tests.

MISCELLANEOUS

The theme of the Textile Institute Conference in Brighton, England, was "Textiles, their Past, Present and Future". Over thirty papers were presented, the subject matter of which varied from the production and manufacture of fibers to laundering and dry cleaning. Among these may be mentioned a paper on textile printing research by H A Turner, covering thickeners and the steaming operation. Vat dyes on acetate was discussed by G D Sutton. In an article on water repellents, T R Harding expresses the opinion that the wax emulsion repellent finish, although subject to severe competition from the durable type, is not likely to die out in the forseeable future. E S Beton spoke on hand printing. Dr E S Whewell reviewed developments in mechanical finishing on wool fabrics, while the same subject regarding cellulose fabrics was ably discussed by H A Turner. "Trends in Textile Dyeing" is the title of a paper presented by F W Thomas.

Condensed reports of these papers were published in the June 15th number of *The Dyer*, (London). Undoubtedly all papers will be printed in full in the *Journal of the Textile Institute*, and these should be well worth reading.

The technical program of the recent AATCC Convention was right up to the standard of past years. An interesting series of papers was presented in the various divisions of the affair. These will be published in the *Proceedings of the Association* in the coming numbers of the AMERICAN DYESTUFF REPORTER. The discussions following reading of the papers were lively and many interesting points were brought up, which will add further interest to the subjects discussed.

• PATENT DIGEST •

PAUL WENGRAF

DYEING FUR SKINS with Insoluble Azodyes——Excess Formaldehyde in the Naphtholate Solution. C, 4, 03

U S Pat 2,553,375
(Naphthol Chemie—Kirst—May 15, 1951)

Fur skins are generally dyed with oxidation dyes (e g, aromatic bases such as p-phenylene diamine, fuscamine, xylidine, etc, oxidized on the fiber in a cold process). However, acid, basic and insoluble acetate dyes have also been frequently recommended.

The present specification points out the difficulties encountered in preliminary operations, such as mordanting, as well as the sensitivity of the fur material to elevated temperatures and the chlorinating process, which are needed mostly for increasing the affinity of the animal hair to various dyes.

It has now been found that insoluble azo dyes, which have not been used up to now for this purpose, are most suitable for dyeing fur skins. The material is treated with a strongly alkaline solution of a coupling component, having at least one free OH- group and one free, unsubstituted hydrogen atom (thus being capable of coupling on o-position to the OH-radicle). Formaldehyde is added to the alkaline solution of the coupling component. Skin treated with this solution is then developed in a diazonium compound as usual.

The addition of formaldehyde to the alkaline naphtholate solution is important since the hair and the skin would be severely damaged without it. Therefore, formaldehyde is applied in rather great amounts (e g, 2 mols for each mol of the coupling component). No fiber damage has been experienced through its use although solutions of pH above 11 are used, corresponding in basicity to those applied in naphthol dyeing of vegetable material.

Examples suggest a one hour immersion at temperatures between 35-40°C in a solution containing the naphthol component (e g, Naphthol AS-SG) and 30% of formaldehyde. The naphthol compound is first dissolved in alcohol after which caustic and some more formaldehyde are added. After an hour the material is hydroextracted and developed at room temperature in a diazonium salt, e g, zinc chloride double salt of 4-amino-3-5-dichlorophenyl-1-diazonium chloride. A deep black fast to crocking is obtained.

A table reports a great number of shades obtainable by use of various insoluble azo dyes according to this method. Yellow, brown, red, wine, red-orange and purple to black colors can be produced.

It should be emphasized that the present invention deals with a comparatively new fur-dyeing method of particular value in which very fast insoluble azo dyes are applied in a simple procedure. It could not be expected that highly concentrated alkaline solutions may be safely used in dyeing of this material. The effect is obtained by operating in the presence of excess formaldehyde. The penetration into the skin is very slight. By splitting a thin layer off the skin side of the fur, one may see that the remaining skin appears almost colorless.

Among other references cited by the Patent Office:

USPat 2,183,752 (Imperial Chemical Industries/1939): dyeing furs with a preformed dyestuff obtained from amino-phenol-diazotized picramic acid. The fur is immersed in a neutral or acid solution.

USPat 1,978,800 (Levy/1934): mordanting fur skins after a treatment with Na_2CO_3 and formaldehyde.

USPat 1,718,882 (Verein f Chem & Metall Production/1929): aromatic compounds containing the grouping $-SO_2.NH-$ were found to have great affinity for animal fibers. Coupling components containing this radicle are applied on wool and developed with diazotized bases.

Brit P 451,264 (I G Farben/1934): treating wool with naphthol AS compounds dissolved in alkalis of low concentration and adding formaldehyde to stabilize this solution.

Brit P 457,798 (I G Farben/1934): Halfwool dyed with naphthol AS dyes. The material is first treated with an oxidizing agent, then with an alkaline naphthol AS solution (the naphthol being dissolved in alcohol-formaldehyde-caustic) and finally developed in a diazotized base.

PRINTING INDIGOSOLS—— Iminazolines or Phenylguanidine Derivatives Added D, 2, 04

U S Pat 2,559,809-10
(Imperial Chemical Industries—Topham—July 10, 1951)

Certain sulfuric acid esters of leucovats (Indigosols) give sparingly soluble alkali metal or ammonium salts; for this reason

weak and dull prints result when these dyestuffs are applied according to standard printing methods.

It has been discovered as disclosed in USPat 2,559,809, that brighter and stronger prints may be obtained by adding a compound containing sulfonic acid- and substituted thiourea groups, examples of which are benzylthioiminazoline sulfonic acid or trimethylsulfobenzylthiourea.

USPat 2,559,810 proposes a solution-promoting agent, a compound containing a sulfonic acid radicle linked with substituted or nonsubstituted guanidine, e g, p-phenylene guanidine sulfonic acid.

In both cases the Indigosol dye can be printed using the nitrite- or the chlorate-vanadate-thiocyanate formula.

A typical Indigosol dye (sparingly soluble in the printing paste) is the orange vat dye, dibromo anthanthrone.

CELLULOSIC FIBERS, Treated with Silk Solutions in Copper Alkylolamine Complexes G, 2, 01

U S Pat 2,565,832
(Whitner—Aug 28, 1951)

The inventor discusses in the preamble to this specification his USPat 2,417,388, which describes an impregnation of cellulosic fibers with dispersions of silk fibers in an aqueous solution of copper alkylolamine complexes mixed with an alkali hydroxide. After the impregnated goods are washed, the silk substance is insolubilized by an acid aftertreatment.

The alkali metal hydroxide of this composition has been replaced by tetra alkyl ammonium hydroxide, according to a copending application, which has probably not yet matured into a patent.

The present specification indicates that neither of the aforementioned compounds by themselves are capable of satisfactorily dissolving the silk fiber material. It is important that both reactants be blended to increase the dissolving effect. This is done by adding a small amount of NaOH or KOH.

Example: crystalline copper sulfate is mixed with triethanolamine until the precipitate initially formed is redissolved to a deep blue liquid, which is diluted with water to a Cu content of 2%. Two parts of this dilute solution are mixed with one part of a 40% solution of tetra ethanol ammonium hydroxide. Silk disperses in this liquid at a ratio of 6.3%. Bleached cotton, impregnated with this silk dispersion, is washed with dilute acid, then rinsed and dried. The fabrics so treated acquired a soft touch. Moreover, they showed increased affinity to direct and acid dyes, obviously due (so far as the acid dyes are concerned) to the content on nitrogenous compounds.

Among other references cited by the Patent Office:

USPat 2,417,388 (1947—Chemical Laboratories, Inc) discloses that alkaline alkylolamine copper solutions are suitable for dissolving natural silk, thus differing from standard cuprammonium solutions, which are nonsolvents for silks. Cellulose fibers impregnated with this solution show increased affinity for acid dyes. This patent probably covers the process known in the trade as "Sericized".

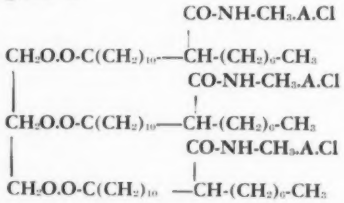
Further reference is made to USPat 2,512,558 (Chemical Laboratories, Inc, same inventor, cf *Am Dyestuff Reptr 40,* 5, (1951) describing a treatment of cellulosic fibers with alkaline copper alkylolamime complexes.

It has previously been proposed that the solubility of silk fibers in copper-complexes be used for fiber forming purposes, thus obtaining regenerated silk threads (USPat 1,955,221 of I G Farben-Börner). It is not know nwhether regenerated silk fibers of the type have been produced on an industrial scale.

PIGMENT PRINTING—— Fixation with High Substituted Carbamato-Pyridinium Compounds D, 2, 07

U S Pat 2,565,358
(Imperial Chemical Industries—Douglas, Lowe, Robinson—Aug 21, 1951)
U S Pat 2,518,266
(Imperial Chemical Industries—Baird, Barr, Lowe —Aug 8, 1950)

These co-pending patents describe the formation of complicated pyridinium or other quaternary compounds through the reaction of high fatty acids or glycerides with phosgene and treatment of the chloroformic ester obtained with ammonia to form polycarbamates. The latter are transformed by the interaction with formaldehyde and hydrochloric acid into dihalogen dimethylethers, which are further transformed by reaction with a heterocyclic tertiary amine (pyridine) into the final quaternary products. Tristearintris (carbamato methyl pyridinium) trichloride, which contains the characteristic carbamato grouping -O-CO-NH-CH_2, is an example. The formula of this product is given as



wherein "A" is the pyridine radicle

These compounds are among others recommended as shrinkproofing agents.

According to USPat 2,565,358 the aforementioned substances find useful application in pigment printing methods. They are made into aqueous pastes from their water-soluble quaternary form. At least twice the weight of this compound calculated on the amount of the pigment should be used. Synthetic resins that are insolubilized by a further heat treatment (i e, vinyl resins, methylolurea or melamine-formaldehyde condenstates) and one of the usual printing thickeners (gum tragacanth) have to be added. After the printing operation, the goods are aged or baked at 100-150° C (preferably 105° C). The process is principally based on the conversion of the quaternary soluble salts into water insoluble compounds that adhere to the fibers. The chain linked to the quaternary salt must not contain any further group that imparts water solubility after splitting of the quaternary salt.

Example: a butanol solution of tristearintris (carbamato methyl pyridinium) trichloride is made into a printing paste with dibutylphthalate (as a plasticizer), tragacanth mucilage, and polyvinylchloride mixed with chalk. An aqueous paste of an insoluble azo pigment is homogenized with this suspension. The printed goods are dried (or baked) at 105° C. The prints are found to be fast to crocking and washing.

References cited by the Patent Office:

USPat 2,361,270 (1944—duPont): a modification of the Zelane treatment. The pyridinium compound of the Zelane type is combined with a positively-charged dispersion of a thermoplastic resin, e g, an n-butyl methacrylate polymer.

USPat 2,202,200 (Ciba—1940): pigmented melamine-formaldehyde condensates incorporated into printing pastes are suitable for producing matt effects on acid transparentized cellulose fabrics.

USPat 2,191,362 (Ciba—1940): methylolmelamine solutions, curable at temperatures lower than those for the corresponding phenol- or urea- precondensates, are used for permanent finishes.

This invention evidences some analogy to water repellent processes based on quaternary pyridinium compounds (Zelane method) or to the fixation of resists (cf Brit P 630,172, Bleacher's Assn, *Am Dyestuff Reptr 39,* 335, (1950). It can not be concluded from these references, however, that the carbamatopyridinium compounds used in the present method have a superior fixing effect in pigment printing.

Proceedings of the
American Association of Textile Chemists and Colorists

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DECEMBER 10, 1951

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Calendar of Future Meetings

COUNCIL: Jan 18, 1952; April 18, 1952; June 20, 1952; Sept 19, 1952 (all in New York): Nov 6, 1952 (Boston).

GENERAL RESEARCH COMMITTEE: Dates and sites are the same as the Council's.

NATIONAL CONVENTIONS: 1952—November 6-8, Boston, Mass; 1953—Sept 17-19, Hotel Stevens, Chicago, Ill; 1954—Atlanta, Ga.

HUDSON-MOHAWK SECTION: Feb 1, 1952, Mar 21, 1952, May 2, 1952 (all at Jack's Restaurant): June 20, 1952 (Annual Outing).

NEW YORK SECTION: Jan 11 (Hotel New Yorker); Feb 29 (Hotel McAlpin, New York); April 18 (Swiss Chalet); May 16 (Swiss Chalet); June 20 (Outing).

NORTHERN NEW ENGLAND SECTION: Jan 25 (Boston); Mar 7 (MIT); April 18 (LTI); May 16 (Andover Country Club); June 6 (Annual Outing, Merrimack Valley Country Club); Dec 6 (1952 Annual Meeting, LTI).

PACIFIC SOUTHWEST SECTION: Jan 11, 1952 (Nikabob Cafe, Los Angeles); March 28, 1952.

PHILADELPHIA SECTION: Jan 18 (Kugler's, Philadelphia); March 7 (Penn-Sheraton Hotel, Philadelphia); April 25 (Abraham Lincoln Hotel, Reading, Pa); June 13 (Outing, Lu Lu Temple Country Club, North Hills, Pa).

WESTERN NEW ENGLAND SECTION: Dec 14 (Rapp's Restaurant, Shelton, Conn).

Thirtieth Annual Convention —

ANNUAL BANQUET

AFTER coffee had been served at the banquet for the Thirtieth Annual Convention in the Statler Hotel in New York on Friday evening, October 19, 1951, Paul Luck, a cochairman of the Convention with Charles Dorn, arose and introduced the toastmaster of the evening.

Paul J Luck: Welcome, friends, to the Annual Banquet of the Thirtieth Annual Convention of the American Association of Textile Chemists and Colorists. It is now my great pleasure to introduce to you the Toastmaster of the evening, the President of our Association, C Norris Rabold.

President Rabold: Thank you, Paul.

Ladies and Gentlemen. We have surely had a lot of firsts at this Convention. We plan to tell you about a few of them later on, but I think this is the first time that the President of the Association has had a chance to preside at the Annual Banquet. I consider this a great personal compliment, and I shall try to acquit myself of my duty, without trying to tell any stories. Instead I shall try to keep things rolling along as fast as possible.

* * *

I should like now to introduce some guests, all of whom were very kind to us members of the American Delegation that visited Europe last June. These include Dr C A Moyer of Switzerland, a member of the Swiss Federation of Chemists and Colorists, Dr E A Kronfeld and Dr George Heberlein. I also want to present to you George White, chief chemist of Imperial Chemical Industries, a member of the Council of the Society of Dyers and Colourists and a member of the Textile Institute of England. This gentleman was among those who greeted us so warmly in England. Mr White has a letter to read to you.

George White: Mr President, Ladies and Gentlemen. Thank you for the distinction you accord me in this distinguished gathering and for your delightful hospitality.

I am present in several capacities, besides bringing you greetings, and I feel a little like Pooh-Bah in the *Mikado,* who was the Lord High Everything Else, except in my case there is not so much of the "Lord High".

Personally, I bring you greetings from the Lord Mayor of Manchester, and a letter from the President of the Textile Institute, which says:

"Dear President, — It is with great pleasure that I convey to you the greetings and felicitations of the Textile Institute at this, your Thirtieth Annual Convention. You will, I know, have several of our members with you conveying you personally our good wishes."

"I could not let this occasion pass without thanking you for the co-operation that we have received from the Association in the past and stressing our desire to maintain throughout the future the fresh, kindly, friendly contacts we have thus far enjoyed."

"May I add my personal regards to you and to all the members of the Association whom I have had the pleasure of meeting this year. Yours truly, George H Spencer, President".

I also have a present for you, Mr President. Speaking now for the Joint Committee of Textile Dyers and Colourists, I would be pleased to have you accept from the Committee this inscribed copy of *The Review of Textile Progress.* There are only two similar copies in existence, and they belong to the Textile Institute and the Society of Dyers and Colourists.

Presentation of book (applause)*.

Speaking in my third capacity, I represent the Society of Dyers and Colourists, being, as your President has already informed you, a member of the Council of that body.

With you in the AATCC we are now jointly venturing on the publication of a new and immensely extended *Colour Index.* This quarter-million-dollar project calls for the closest and friendliest association between the two parties to insure its success, and it is as a token of its collaboration that the Society of Dyers and Colourists asks you to accept for your Association library this specially bound copy of the *Photochemistry Symposium,* within which is a reproduction given by the Society to the ancient dyers in London.

Presentation of book (applause).

Next, I come before you as the chief colorist of the ICI Dye Division. May I say how much we in that Company welcome the close contact we have with you in the AATCC.

Lastly, I stand here as a British citizen. To my many American friends who visited us in Britain (among whom was your President) I want to say, on the first visit to this country, that I am struck by the warmheartedness and overwhelming generosity of everybody I have met and especially of the officers of the New York Section, of my friend Leonard Little, and of you, Mr President.

May our common steadfastness, together with our common acceptance of the principles of freedom for the individual, serve powerfully to unite us in this exciting but peculiar world of today.

Finally, sir, may I thank you again for giving me the occasion to make these acknowledgments.

And now, I ask your leave to sit (applause).

President Rabold: On behalf of the Association I want to say that the gift which has just been given to us for our library by our friends abroad is gratefully received, and it is most gracious indeed for our friends over there to remember our visit. I wish to thank you very much; please convey our best respects to Mr Spencer and to the many other friends whom we met.

On behalf of the National Association I want to congratulate our host, the New York Section, and our able cochairmen, Charles Dorn and Paul Luck, and all of the members of the many committees, who worked so capably with them to make this Convention possible. I also want to congratulate Leonard Little and the other members of his committee for the first and very successful Luncheon Symposium, the subject of which was "Mixed Fibers".

* The book has been presented to the Association by President Rabold and will be kept in the Association Library in Lowell.

PRESIDENT'S ADDRESS

C NORRIS RABOLD

LADIES AND GENTLEMEN: At this, the Thirtieth Annual Convention of our Association, we have witnessed a number of "firsts". We have attended one of the largest exhibits ever conducted at the Annual Convention. We have witnessed the beginning of what we hope will be an annual feature of our conventions in the future, namely, the Student Intersectional Contest, and we have attended one of the finest technical programs ever presented at an Annual Meeting. We are presenting, for the first time, an award from the *American Dyestuff*

Reporter for the best paper published in the *Proceedings* during the past year.

There have been some events featured at past conventions that have been omitted at this one. One of these events, which I am sure you have all missed, has been the President's Annual Report. In recent years this Report has generally been presented at almost any odd hour in which it could be fitted. Large crowds thronged to listen to the Report, such throngs usually consisting of the President himself, of course, and two or three sympathetic individuals who felt he should not be required to read his Report alone. Naturally, as the President believed that matters of grave importance to the Association should reach a wider audience, you now have another "first", that is, a President's Report under the guise of the President's Address. Don't worry, I shall make it brief and, I trust, of some interest.

Our Research Committees have been very active this past year and have developed a number of tentative tests which are to be added to our test methods. The Wash-Fastness Committee, among others, has now developed methods for accelerated wash tests to simulate color loss equal to five commercial launderings. The 3A Test is included in the new *Year Book* and the 4A Test will be presented to the General Research Committee very shortly for consideration. The work of this Committee, along with that of the committees on light, shrinkage and many others, follows along with our efforts to keep abreast of modern practices and requirements. This means that many of our standard tests are continually undergoing re-examination and revision to meet today's needs.

Your President and Mr Little had several meetings with the Society of Dyers and Colourists in England on the matter of the *Colour Index*. This has been a tremendous joint undertaking of the two English-speaking organizations, and you will be pleased to know that this year marks the termination of the accumulation of data. From now on out it will be a matter of organizing this information and of getting it assembled so that it can be submitted to the printer. It is hoped that the *Colour Index* will be published in 1955. We realize that this is still quite a delay, but, unfortunately, there have been many problems that have arisen which could not have been foreseen. At the present moment, the very serious problem is confronting us of obtaining paper of suitable quality for this publication. As a result of our trip abroad I have appointed a special committee to investigate matters pertaining to paper and its procurement in this country.

Returning to our research activities for a moment, I am sure you will be pleased to know that we had a very profitable meeting at the Conference of the International Standardization Organization, where this Association, as a supporting member of the American Standards Association, took a leading part in the colorfastness discussions. At our meetings there with the other member countries we have arrived in principle at some sixteen tests on which we believe world-wide agreement can be reached.

These world-wide contacts naturally broaden the scope of our Research Committee's work and will require more attention by the various committees involved as well as by our Director of Research and his staff at Lowell. Because of these increased activities on the part of our research staff, our budget has been expanded. This of course means that our corporate membership should also be expanded because of this increased value of our work to corporate members. Our broadened research program and its results cannot help but be of benefit to all of our corporate members.

It seems both appropriate and timely, after thirty Annual Meetings, to review briefly what we have done in the past, what we stand for at the present time, and perhaps predict where we might be going in the future.

Since its conception, this Association has been a technical organization. This it has been in the past, it is now, and it should continue to be. Our abilities lie in technical fields, our members are technically trained and our activities are primarily directed to the technical advance of the textile industry. These precepts are laid down as the objects of the American Association of Textile Chemists and Colorists, and, whether we wish to change them or not, we are obliged by the mandates of our founders to carry out and help develop these objects. I should like to quote those objects:

First, "To promote increase in knowledge of the application of dyes and chemicals in the textile industry."

Second, "To encourage in any practical way research work on chemical processes and materials of importance to the textile industry."

Third, "To establish for the members channels by which the interchange of professional knowledge among them may be increased."

Our founders wrote wisely and well some thirty years ago when they set up these three objects for us to follow. I doubt, though, that any of the founders of this Association, wise as they were, could visualize a meeting such as this, could visualize our numerical growth, or could anticipate the many complex problems that confront the textile industry of today. It is doubtful, too, whether they could have predicted that path that we have followed in our efforts to conform to the objects they laid down. Neither can we anticipate today what this Association will be doing, and how, thirty years from now. As times change, and as new problems present themselves, so does it become necessary for us, as the leading scientific organization in the textile industry, to adapt ourselves to these changing conditions. It is not necessary or desirable to change our objectives; rather we should strive more and more to realize these objectives in a changing textile industry.

Our predecessors in the administration of the Association early and wisely decided that we should not spread ourselves too thin. We have therefore confined ourselves largely to the development of test methods and procedures, the dissemination of the latest technical information through our *Proceedings, Technical Manual and Year Book*, monographs and other publications, and the encouragement of students to enter into Association activities.

In recent years we have become aware of what was once a forgotten individual, namely, the ultimate consumer. Our Research Committees have taken great pains to devise methods for evaluating dyes, chemicals and fabrics so that everyone might be better clothed and his house better furnished at a lower cost through greater usefulness and beauty of fabrics. We have gone even further in that we have stepped outside of our own wet-processing industry to educate and encourage others in the proper evaluation of textiles by methods that are becoming increasingly acceptable to everyone.

In spite of all this, we are occasionally asked by some of our people engaged in the processing of textiles, "What does the American Association of Textile Chemists and Colorists do?" It is rather amazing that anyone engaged in bleaching, dyeing, printing and finishing textile fibers, yarns or fabrics should ask such a question. Perhaps, like the usual technical man or scientist, we have been unduly modest in telling people what we are doing. One answer to a question of this sort could well be to ask the questioner in turn what he would do if he had no way of evaluating his fabrics for light fastness, wash fastness, or shrinkage other than tests he would devise himself. Who would be willing to accept his tests as correct if every other processor had a separate set of tests? This seems to me a sufficient answer to those who do not know of our work in the standardization of textile testing methods.

As we go on, we are not only assuming ever-increasing responsibilities with-

in our own country, but we now have definite world commitments in the establishment of standard test methods and procedures. I doubt if our founders could have foreseen this development or if we ourselves can foresee too well where such obligations will lead us.

This brings us back again to the objects of our Association, in which we find very plainly stated what we are supposed to do. Our Association is not a social organization; it is not a go-getters' club. We are primarily a group of scientists and technicians engaged in technical activities. Attempts to streamline and improve our activities as seen here at this convention are most worthwhile. Organization-wise, we recognize and encourage such changes that will keep us in active and efficient position to render the services to the textile industry that we have in the past and to expand them in the future as occasion demands.

We now come to the presentation of the Olney Medal. This, as most of you know, is given to us by the Howes Publishing Company to be presented to the outstanding individual in service to the textile industry as determined by an AATCC Committee during the past year. We wish now, therefore, to render respect to one who has given much service to our industry.

(The talks in homage to Raymond Jacoby, the 1951 recipient of the Olney Medal, were published in the *Proceedings* of October 29, 1951, on page P698.)

* * *

PRESENTATION OF HONORARY AWARD TO HUGH CHRISTISON

PRESIDENT RABOLD: We are now at a part of our program that would normally give us a great deal of pleasure, but this time the presentation of an Honorary Membership is tinged with sadness. I regret to tell you that the recipient of this membership is now so gravely ill that he is unable to attend. Possibly the best way in which we can express ourselves is to read excerpts of letters comprising the correspondence with Hugh Christison, upon whom we wish to confer this honor. These letters were written by your National Secretary, Dr Harold C Chapin, by your President and by Mr Christison's daughter.

Dr Chapin's letter was as follows:

"Dear Mr Christison: At our June Council Meeting it was proposed that you be elected an Honorary Member of our Association. The idea was received with enthusiasm by the Council. The required unanimous vote has been received. Nothing further is required of the Council or of you than your acceptance. This will give great pleasure to all of our members as a means of recording, for the life of the Association, our appreciation of your many services since its foundation and of your sturdy devotion to truth."

I wrote a letter to Mr Christison at the same time, a part of which was as follows:

"If a small group of thoughtful people had not believed in the idea of betterment of the textile industry and had not been willing to sacrifice their time and effort to promote this idea, there would not be any American Association of Textile Chemists and Colorists. You and the other founders have built a grand thing, and I am happy that we are helping in a small way to carry on what you Charter Members of this Association began."

Mr Christison's daughter wrote as follows:

"My father has asked that I acknowledge your kind letter of a couple of weeks ago. He suffered a cerebral thrombosis in August and at present is not able to reply himself. Being elected to Honorary Membership in the AATCC has been one of the most rewarding experiences of his life. Coming at a time when his health has been severely impaired, it has given him an uplift in spirit, so sorely needed.

Nothing would give him more joy than to attend your Thirtieth Annual Convention. Though he will not be able to be there in person, he will certainly be there in thought.

His great appreciation goes to you and to all members of your Association for the honor you have accorded him."

I know all of you join me in sincere wishes for Mr Christison's recovery.

* * *

AMERICAN DYESTUFF REPORTER AWARD FOR BEST PAPER IN PROCEEDINGS

PRESIDENT RABOLD: The next item on our program is the American Dyestuff Reporter Award, which will be explained to you by Professor Percival Theel. This is another "first" as this is the first year that this award has been made.

Professor Theel: About a year-and-a-half ago Norman Johnson, on behalf of the Howes Publishing Company, proposed to the Council the establishment of an annual award of $200.00 to be known as "The American Dyestuff Reporter Award for the Best Paper Published in the Proceedings of the American Association of Textile Chemists and Colorists". Any paper published in the *Proceedings,* whether or not it has been presented orally or otherwise before any meeting of the Association, is eligible for this award, excepting only Intersectional Contest papers, which have their own award. This was established by the Howes Publishing Company to assist us in our efforts to raise further the quality of our publications.

By the action of the Publications Committee, the award is based on the following merits: originality, scientific value, practical value, and format. The year for the Award is from July 1 to July 1, the year for the first Award covering the papers published in the *Proceedings* from July 1, 1950, to July 1, 1951.

The three judges appointed by the Publications Committee to screen the papers and to select the best three for the year were the following: Harold M Chase, Hugh Christison and Professor Neil L Phelps, representing both industry and the educational field. The Publications Committee then balloted to select the best paper from the three chosen by the judges.

I wish to thank the Howes Publishing Company for its generous action in establishing the Award and the judges and the members of the Publications Committee for their work in selecting the winner.

The American Dyestuff Reporter Award for the first year is made to Drs Mason Hayek and Frederick C Chromey for their paper entitled "The Measurement of Static Electricity on Fabrics", which was published in the *Proceedings* in the *American Dyestuff Reporter 40,* P164 (No 5, Mar 5, 1951).

Dr Hayek and Dr Chromey, let me be the first to congratulate you.

Presentation of Award and applause.

* * *

INTERSECTIONAL CONTEST AWARDS

PRESIDENT RABOLD: The Intersectional Contest Awards will now be presented by Frank O'Neil, Chairman of the Intersectional Contest Committee, who is custodian of the sealed envelope containing the results of the secret ballots of the judges. Since the Committee is scattered over the country, Mr O'Neil is to be commended for the great amount of work that was necessary to carry out the functions of the Committee. We must congratulate him, his committee, the Sections, their committees and speakers for a most successful contest this year.

Frank J O'Neil: I want to thank the various sectional committees that have done the work for the Contest this year and that have assured its success. We always have a lot of fun in this Contest. It represents a co-operative effort of practical and theoretical men, dyers, chemists,

and even salesmen.

Although I spent a lot of time writing a speech, in keeping with President Rabold's wishes I shall keep the speech in my pocket and read the results of the contest, which are in this sealed envelope. Please refrain from applause until I complete my reading.

Third Prize....Philadelphia Section;
Second Prize..Rhode Island Section;
and
First Prize.....New York Section.

(Applause)

President Rabold: Thank you, Frank O'Neil. Although I don't remember telling you not to make a speech, you certainly cannot be accused of having bored us with one.

* * *

INTERSECTIONAL STUDENT CONTEST

PRESIDENT RABOLD: We now have another "first" at this Convention, namely, the first Intersectional Student Contest, which started on a local basis in some of the Southern Sections. We think that it is a fine thing to hold a contest for students so as to promote their participation in our activities and thus to build for the future.

I shall now ask Patrick Kennedy, who has acted as Chairman of the Intersectional Student Contest, to tell you about it.

Patrick J Kennedy: Ladies and Gentlemen. It is my pleasure to present special awards to the two students who were the first to participate in this, the first Intersectional Student Contest. They are to be congratulated on the excellence of their papers. We are sure that the modest but fine success of this year's contest is an augury of what we may expect from future student contests. I am happy to present a beautiful Admiral wrist watch to each of the participants: Robert J Lynch of the Institute of Applied Arts and Sciences in Utica, N Y, and C Franklin Donyes of North Carolina State College, Raleigh, N C, who flew here from California to take part in our program. Mr Donyes' paper had been a prize winner at a local contest in the South last Spring.

Presentation of Watches and Applause

—♦ ♦—

Hudson-Mohawk Meeting Report

November 9, 1951
Hotel Utica, Utica, N Y

THE Hudson-Mohawk Section held its annual Utica meeting at the Hotel Utica, Utica, N Y, on Friday, November 9, 1951, at which Berkley L Hathorne, head of the Auxiliary Department, Geigy Company, Inc, presented a paper entitled "Sequestering Agents". In addition to the paper, Mr Hathorne presented a display of photographs and exhibits illustrating the use of the salts of ethylene diamine tetra acetic acid. The usual question and answer period followed.

Members of the Student Chapter of the Utica Technical Institute, were guests for the meeting.

53 members were present.

Respectfully submitted
WILLIAM A NELSON
Secretary

EMPLOYMENT REGISTER

This column is open for two insertions per year, per member, without charge. Blanks can be obtained from, and filed with, the Secretary of the Association. Lowell Textile Institute, Lowell, Mass. It is understood that these will be open to inspection by prospective employers who can obtain further information from the Secretary.

51-35

Education: B S in textile chemistry and dyeing, Lowell Textile Institute.

Experience: chemist; speaking and reading knowledge of French.

Age: 29; single with one dependent; references; any geographical location acceptable.

11-26, 12-10

51-39

Education: M S, textile technology.

Experience: engineer, testing, product and process development in cotton printing and finishing.

Age: 24; married; references; any location in U S, acceptable.

11-26, 12-10

51-41

Education: B S Chemistry, New Bedford Textile Institute.

Experience: textile inspector.

Age: 24; single; references; position as textile chemist desired, location not restricted.

11-26, 12-10

51-42

Education: High School; chemistry in U S Army.

Experience: Dyer.

Age: 35; married; references; Central Atlantic coast or South preferred.

11-26, 12-10

51-43

Education: B S, N C State College.

Experience: Textile technician, clothing stores.

Age: 31; single; references; vicinity of New York City preferred.

11-26, 12-10

NOTE

Re: Rapid Analytical Method for Determination of Changes in Cotton Textiles

THE simple analytical procedures described by Oskar Heim (1) for determining the amount of degraded cellulose in processed cotton textiles makes use of a stock solution of sodium zincate. The method, which is very much simpler than making cuprammonium fluidity measurements, has not been used so extensively as it deserves because of a seeming difficulty in making the stock sodium-zincate solution that is used with urea for dissolving damaged cotton. The novelty of the Heim method is that urea is used in place of ammonium thiocyanate in conjunction with sodium zincate.

The improved dircetions for preparation of the sodium-zincate stock solution are as follows:

Parts by Weight

9	ZnO is pasted with
20	water. To the slurry is added
20	caustic soda flakes with stirring until solution is complete. The clear solution is diluted with
51	cold water.
100	total by weight

The heat of reaction is usually sufficient, especially with large quantities, to bring about fairly prompt solution. The presence of undissolved zinc oxide is most readily observed in the bottom of the dissolving vessel, which is preferably of stainless steel, by peering into the bottom of the solution after insertion of a clean, empty Nessler tube. If any undissolved zinc oxide is observed, the solution is stirred still further, outside heat being applied if necessary. Only then is the cold water added for final dilution.

REFERENCE

(1) *Am Dyestuff Reptr 39* P417 (1950).

—♦ ♦—

Three Additional 1952 Meeting Dates Set by Philadelphia Section

THE following dates and meeting places have been added to the 1952 calendar of the Philadelphia Section, according to an announcement by Thomas H Hart, secretary:

March 7—Penn-Sheraton Hotel, Philadelphia, Pa.

April 25—Abraham Lincoln Hotel, Reading, Pa.

June 13—Outing, Lu Lu Temple Country Club, North Hills, Pa.

Pacific Southwest Section——

PROOF THROUGH RESEARCH PROVIDES THE BASIS FOR INSTRUMENTATION*

D B DAUBERT

Textile Industry Engineer, Industrial Division
Minneapolis-Honeywell Regulator Company

INTRODUCTION

It is probably inherently characteristic of people, particularly those working at specific occupations, to become so involved with the routine problems of their occupation that they haven't time to analyze every minute detail and its many ramifications. When a man is saddled with the burden of responsibility for the profitable operation of a dye house or finishing mill, his time is at a premium. Although the voluminous reports of his technical societies frequently treat one subject at a time, he, as a supervisor, must direct the over-all operation and be able to see the forest as well as the trees.

On the other hand, there is the instrument specialist whose specific job is to ignore the forest and to treat the trees as individual problems. In this case the trees are single processes, or single problems within a process, like the effect that one variable might bring to bear on the successful manufacture of the product. Frequently the instrument specialist will make a project out of the temperature effect in a dye kettle, searching out the evidence from every available piece of literature or reference. This, of course, is his job. He does not have to be concerned with material handling, payroll, labor relations, or many other organizational headaches. His time is dedicated to finding a means of applying instrumentation and control that will improve the dyeing or finishing process.

DYEING CONTROLS

Let us point out some of the control aspects in dyeing and finishing that have been developed through the tireless efforts of research as it points its finger in the direction of improved product, production efficiency, or both.

For many years the practice of dyeing was carried out in a manner that, by today's standards, might well be considered slipshod and experimental. Certainly, with no means to guarantee reproducibility of the controllable variables, the entire process must have been a "by guess and by God" operation.

D B Daubert

An instrument engineer shows how modern control instruments not only reduce labor costs but improve quality in textile processing. Illustrations are presented of a complete system for controlling all of the factors in dyeing, including especially temperature, length of cycle, and pH. Instrument control is equally important in the finishing operations that follow dyeing or printing, such as drying, aging, steaming, and nylon heat setting.

However, when consideration is given the numerous variables involved in a single dyeing, it is not hard to see how errors occur between batches, or why dyeing is often a cut-and-try process, which, by the skill of the individual dyer, has become recognized as an art.

Not all of the dyeing process depends on the master's touch. Some of the variables that affect dyeing are controllable. Of these, water content, temperature, time, rate of temperature rise, pH, and even redox potential are measurable and controllable factors, which should, when properly controlled, reduce the chance of shade variations between identical batches.

DYE-KETTLE CONTROLLER——The unit system shown in Figure 1 is designed to control three of the previously mentioned variables: namely, temperature, time, and rate of temperature rise. "Dye-Kettle Controller" is the title applied to this entirely self-contained package unit. As the instrument uses a standard measuring system with a 316 stainless-steel bulb and tubing, a margin of protection is provided against the corrosive action of the dye bath. That is about as far as the term "standard" can be applied to describe this flexible unit. The entire system is contained in a custom-built moisture-proof cubicle that houses just about everything except its own source of electricity and compressed air. Each phase of the dyeing operation is signalled by the lights mounted across the top of the cubicle. The first light is labeled "rise," the second "hold," and the final light is marked "finish." The lights are an inexpensive addition that give a visual assist in the efficient arrangement of production schedules.

At the bottom left-hand corner of the cubicle a calibrated interrupter can be seen. This mechanism functions to inter-

Figure 1
Brown Dye-Kettle Controller

* Presented in Los Angeles, Cal, before the Pacific Southwest Section on Aug 3, 1951.

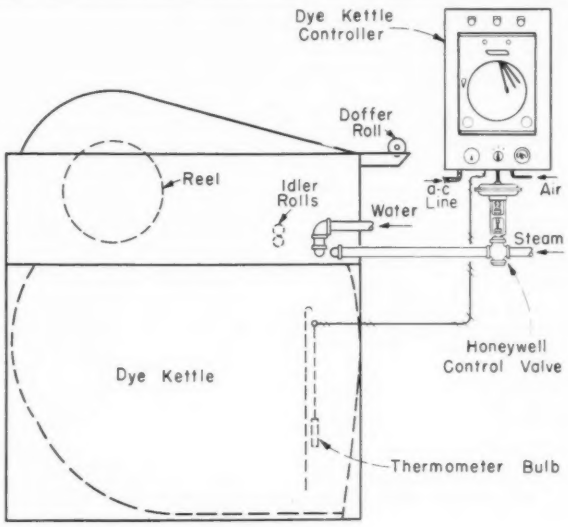

Figure 2

Man-Auto Dye-Kettle Control System

rupt the speed of the index drive motor so that the dye temperature is brought to its hold value at some predetermined rate as determined by good dyeing practice and optimum dyestuff diffusion through the fabric. This rate of rise is infinitely and easily adjustable between the limits of ½ to 8°F/min to meet differences in dyeing behavior.

When the instrument pen arrives at the final control point, a contact automatically breaks the circuit to the interrupter and index drive motor, thereby holding the control index at the desired set point.

Total dyeing time is controlled by a second timer at the bottom right-hand corner of the cubicle. This particular unit, through its timer contacts, energizes the finish light at the end of the dyeing process and shuts down the steam valve by further operation of an electropneumatic relay, through which control air is piped to the control-valve diaphragm. When the Dye-Kettle Controller is applied to a dye beck, the system would appear as shown in the schematic diagram of Figure 2.

The Dye-Kettle Controller is one aid to quality dyeing. It helps to stabilize some of the variables encountered in the process. However, another valuable tool in the dyeing process is pH measurement.

pH CONTROL——In almost any discussion of dyeing, pH is a subject that is sure to arise. Papers presented by Dr Clapham *(1)*, of du Pont, articles by Irving Teplitz in *Textile Age* and *Textile Bulletin (2, 3)*, and many other authoritative sources, point to pH as a vital factor in successful dyeing. For instance, C L Bird *(4)*, in his recent publication titled, "The Theory and Practice of Wool Dyeing", has this to say about acid dyeing and the affects of pH:

> "With dyes in group 2, those exhausted with sulfuric acid, formic acid and acetic acid, and those to even a greater extent with group 3, the remainder of the acid dyes, *level dyeings can only be obtained by careful control of the pH value and the temperature.* In general, these dyes show poor migrating powers, so they must be absorbed slowly and evenly throughout the dyeing."

The measurement of pH need not be a laboratory procedure each time a reading is needed. It is possible to record the pH value of a dye bath continuously as the process is carried through from start to finish.

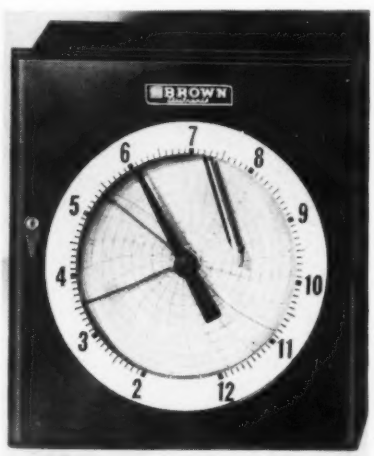

Figure 3

Brown ElectroniK pH Meter

(Courtesy: National Technical Laboratories)

Figure 4

Flow-Type pH-Electrode Assembly

Here is the instrument that provides indication and record of pH, Figure 3. It is the *ElectroniK* potentiometer, a versatile sensitive instrument with a construction so rugged that it is accepted as standard equipment in either steel mill or laboratory.

Figure 4 shows the flow-type electrode assembly for detecting pH values. This is just one of several available forms. Sensing elements are obtainable in other forms and ranges and are corrected for adverse measuring conditions that would otherwise affect the accuracy of pH measurement. Another common form of electrode assembly is the immersion type shown in Figure 5.

A practical application, which might prove of value to the larger dye houses, is the installation of a single recording instrument in the dye-house office. From this point remote readings could be taken for every dye machine in operation. These readings would be available to the boss dyer at any time, and any that showed deviation from accepted values could be detected and corrected before the lot is finished. A schematic representation of a multipoint recording system is seen in Figure 6. The electrode assemblies would be in several dye kettles, and the instrument would pick up one measurement at a time, identifying it by color and number as it records its value.

FINISHING OPERATIONS

DRYING——Of all the finishing aspects in making a piece of cloth marketable,

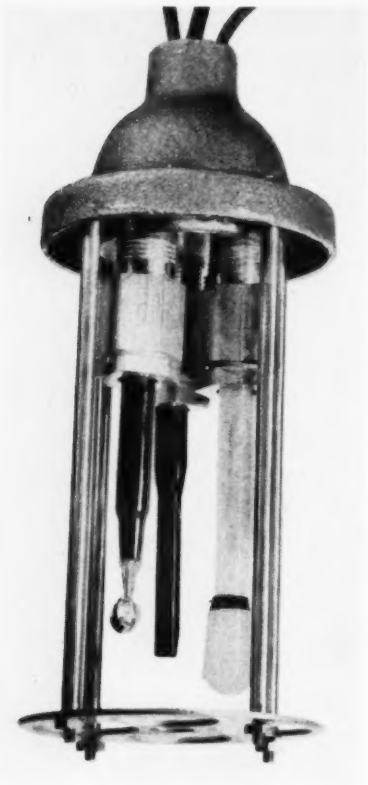

Figure 5

Immersion-Type pH-Electrode Assembly

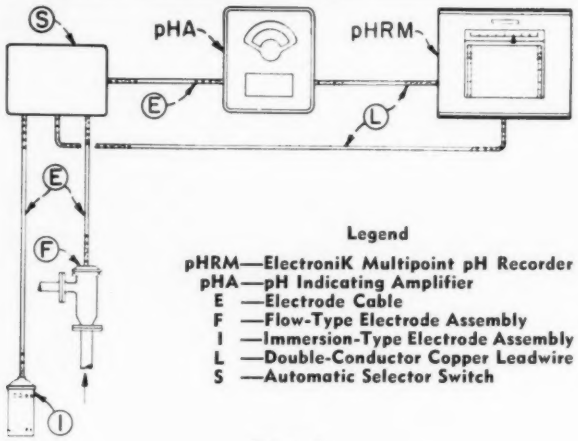

Figure 6

Brown-Beckman Multipoint pH-Measuring System

drying perhaps contributes more to the manufacturing cost than any other single operation. Every time a piece of goods is wet out, a drying operation follows — a process that requires large quantities of heat energy, time, and capital investment.

Since drying is both important and costly, textile scientists have again made a study of the subject. For instance, a series of papers was prepared by Richard K Jones and John C Whitwell *(5)* and published by the *Textile Research Journal.* Here they treated the subject of equilibrium moisture. Their studies enabled them to correlate temperature and relative humidity, so that, by application of their correlations, it would be possible to establish a condition where fiber moisture content could be made to approximate a desired value.

This, in itself, is not particularly significant, but its association to controlled drying is significant, and primarily so because of the relatively small amount of instrumentation required to obtain excellent results — results to some users that have often meant new customers, a better product, less waste, and reduced operating cost.

The instrument primarily used for dryer control is the thermometer, and, where controlled condition drying is attempted, it is generally a two-pen wet-and-dry-bulb thermometer controller. This particular instrument and its psychrometer assembly are shown in Figures 7 and 8.

The dry bulb is generally inserted in the duct work leading from the circulating fans. The instrument's controlled air pressure positions a diaphragm-operated control valve in the steam line to the heating coils to maintain effectively the desired temperature of the circulated air.

The wet bulb, on the other hand, is the indicator of how much drying is being done. It measures the air temperature after it has passed over and through the fabric, registering a wet-bulb depression due to moisture pickup in the drying process. Its control action is to position the flue dampers so as to exhaust more or less air in conformity with the degree of air saturation and thereby to maintain optimum drying conditions.

A setup such as this does not necessarily need a psychrometer assembly. A plain bulb will sense a temperature drop due to heat lost in drying and moisture gained in the air. This is in effect an indication of drying. However, in the final pass of the dryer the psychrometer assembly can be used to advantage. Here is where the moisture content must be maintained when regain is a factor. Therefore, it has proven advantageous in some installations to use the wet bulb controller to admit steam into the atmosphere so that the desired relative humidity-temperature conditions would produce equilibrium drying.

At a New England finishing plant where the print dryers operated at high capacity, turning out 1½ to 2 million yards of printed Bemberg yearly, waste, not seconds, ran in the order of 2 to 3%. At the present cost of material and finishing, it was estimated that $30,000 annually was saved on the basis of waste reduction alone. The finisher at the same time increased his business, increased his machine speeds, and lowered his operating cost, all for a 1000-dollar instrument investment.

Overdrying was the plant problem, which resulted in jagged fabric rips. Equilibrium drying, obtained by automatically controlled air conditioning, was the cure. Here was a whole series of articles on equilibrium drying, available to mill man and instrument man, yet only by chance was the condition proven in operation—only after it was noted that on a dryer without air exhausts in the final zone did they get reduced tearing of the fabric. But at the same time, the reduced product waste was at the expense of high heat input to the dryer. This is known as discovering improvements the hard way. How much easier the problem can be solved if time

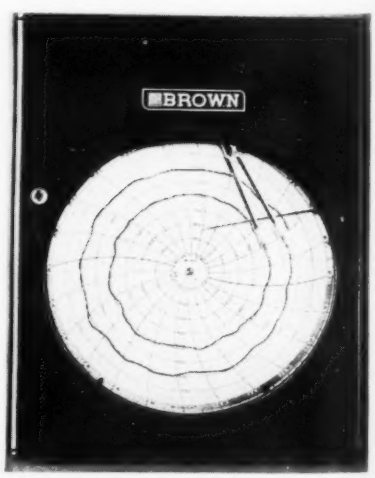

Figure 7

Brown 2-Pen W-and-D-Bulb Thermometer

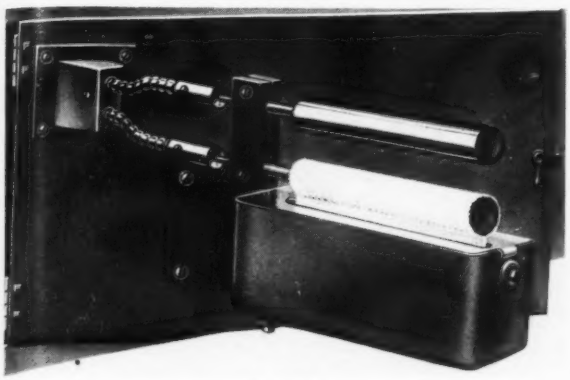

Figure 8
Psychrometer Assembly

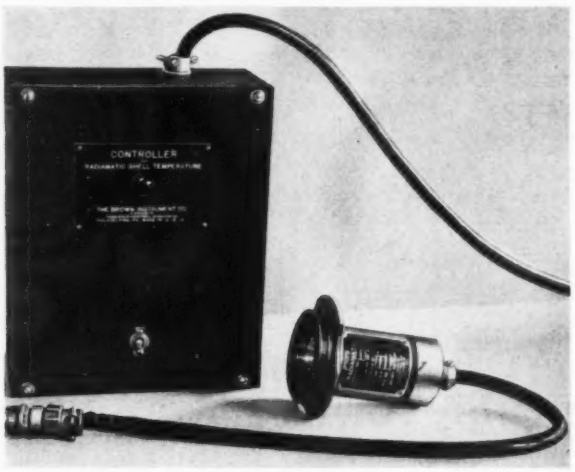

Figure 10
Low-Range Radiomatic Pyrometer

is spent in analysis of the picture after the basic facts have been thrown in our laps.

To illustrate further the value of instruments and controls applied to dyers, A M Zeller *(6)*, an engineer with National Drying Machinery Co, has this to say:

"For the most efficient operation of textile dryers, temperature control is imperative. Control is necessary to insure stable temperature, to prevent overheating, to provide reproducible results, and to lower operating costs."

AGERS AND STEAMERS——Still another presentation through research comes to us by way of Frederick Fahnoe *(7)* of General Aniline and Film Corporation, who outlined a system of control in his paper titled, "A Fundamental Study of Conditions in the Vat Ager."

In the problem of vat-aging color prints, he found, or tabulated what was already realized, the effects of excessive temperature on printed colors. He proved that, above 220°F, temperature very markedly reduces the brilliance of a print, and then he went on to analyze why the temperature increase occurred, and what could be done to prevent the phenomenon. Mr Fahnoe's paper was further supported by Messrs Choquette and Habel *(8)*, of General Dyestuff Corp, when they presented a paper before the cellulosic-group meeting of the AATCC. The paper was titled, "Problems in Aging Textile Prints and Their Control."

In conducting the tests a system such as shown in Figure 9 was used. Before an explanation of the system and its operation, perhaps it might be well to explain what these scientific gentlemen found in the way of high-temperature prevention.

First, it was established that, through a physical reaction known as heat of absorption, a temperature increase was caused. Finishing-plant superintendents in discussions have told me this may or may not be. Some indicate that the dyestuff and chemicals carried by the cloth exhibit a tendency toward an exothermic reaction. Other operators have claimed that excessive heat occurs from latent heat liberated in condensation of the steam, and still others make claims that radiated heat from the coils at the top of the ager cause a superheating effect.

Frequently there is argument pro and con about what causes saturated steam at 212°F to rise as high as 240°F without obvious heat input. However, is argument really necessary? Everyone knows that the temperature increases. The object is to do something about it.

The reason for doing something about it also seems evident. Other than improved prints from reduced temperature, a large saving in power can be realized. Some, or probably a more accurate statement would be, most print-ager operators get a cooling effect in their agers by injection of excessive quantities of steam—five to ten times the quantity of steam needed to heat the printed fabric and exclude air from the reduction chamber. What a waste, if a more economical method is available.

Figure 9 shows a control system that proved, on a 100-cubic-foot laboratory-model ager, that something could be done. Cloth temperature was measured by detection of radiated energy. Excessive temperature caused throttling of water sprays that reduced the cloth temperature and prevented excessive superheating in the cabinet.

A low-range differential-pressure controller throttled the exhaust damper so that a positive pressure could be maintained at all times. This pressure was in the order of +0.01 inches of water and was sufficient to exclude entry of air into the cabinet. It was also noted that, through throttling of the damper in the exhaust, a much improved steam circulation or distribution could be maintained.

The flow controller in the diagram is considered by some to be excessive instru-

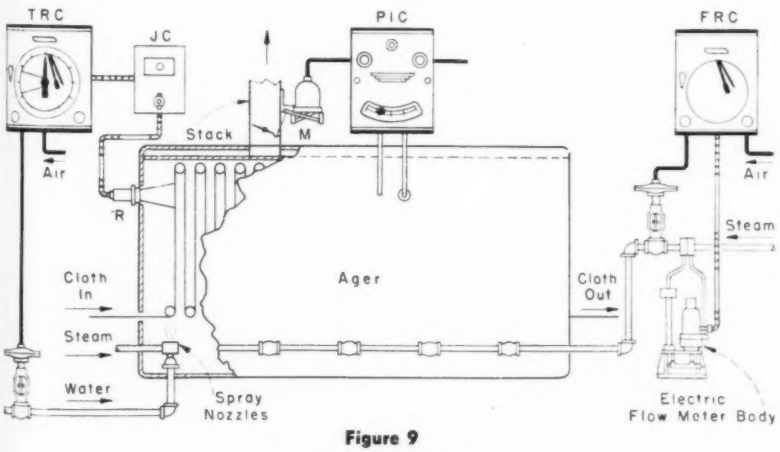

Figure 9
Vat-Ager Control System

mentation. However, as in all processing that must be controlled, stabilization of all variables is extremely important. This is particularly true of continuous processing. Variations in steam flow can occur for several reasons. It might be pressure drop from the starting up of other pieces of equipment, or it might be from changes in process requirement of the machine being controlled. It is reasonably obvious that flow control has another virtue. It acts as a limiting device that prevents the use of steam in excess of that required to do the job as well as assures adequate flow in the face of other demands on the distribution system.

Here is a system of control that accomplished a job by using approximately 0.5 lb of steam per hour per cubic foot of ager. The least we've heard, before or since these test runs were made, was well over one pound per cubic foot. Here is a system that produced bright sharp prints by maintaining steamer temperatures very close to 212°F.

Whatever the reason for temperature rise, is it really important if there's a good economical cure? If your steam consumption could be cut to 0.5 lb of steam per hour per cubic foot, how long would it take to amortize a $1500 investment in instruments? If you produced a better print, how much more marketable would your cloth be?

Other aspects of finishing, both ancient and modern, have benefits obtainable through instrumentation and control. The control for tenter housings, for instance, offers benefits similar to those found in the dryer. And then, a further adaptation of dryer-operations—the curing of resin-treated fabrics—is a critical heat-treating operation that must be controlled for optimum results.

NYLON HEAT SETTING —— One of the more modern textile processes is an evolution brought about through the development of synthetic fibers. It is commonly termed "heat setting." Now, heat setting is not necessarily new to the textile industry since a form of heat setting has, for some time, been practiced in the woolen industry and again on acetate tricot fabrics. However, with nylon as the fiber, new and unexpected results are obtainable with the process. Still more important is the fact that unexpected results that occurred in other processing operations of nylon makes heat setting absolutely essential to the satisfactory finish of a marketable fabric.

Here is a case where it was not necessary for scientists to perform research to satisfy the question of whether instrumentation and control were requisite. In very short order, hosiery finishers came to discover permanent creases appearing in their product. They noticed stitch slippage, and started digging fast for an answer to their problem.

Up they came with an answer. Raise the nylon fabric to an elevated temperature, higher than it will again experience in its expected life, and the problem is banished. So, the birth of preboarding in hosiery manufacture.

The same problem holds true for flat nylon fabrics, and here the situation becomes a bit more involved. First, higher temperatures are used to produce the "set"; secondly, some of the fabric will remain white, and prolonged heat produces rapid discoloration of nylon; third, nylon plasticizes at high temperature, and this property makes the process just that much more critical.

The general idea of heat setting is carried out in a machine that is a cross breed of a dryer. Some setting machines impart heat to the nylon fabric by conduction, some by convection and others by a combination of the two. Still others assume the constructional and operational principle of a tenter. In each case, however, the problem is to elevate the temperature of the fabric rapidly. Now this is not particularly difficult, but to raise its temperature close to the melting point, without incurring damage to the fabric is another story.

Fortunately, technological advancements in the instrument industry have made available a unique method of measuring fabric temperature. This unique method we speak of is a radiation pyrometer, a primary element that is capable of picking up the radiated energy from the fabric and transmitting a signal to a recording instrument, which can be calibrated in temperature units. The name of the unit is the Radiamatic pyrometer, shown in Figure 10.

The ability of nylon, or for that matter most fabrics, to emit radiant energy makes the unit particularly adaptable to a measurement problem of this kind. The speed of response of the instrument is extremely high, its sensing element mass is low, and, consequently, its reaction to temperature change is almost instantaneous.

Again, the output from the Radiamatic pyrometer is picked up by the ElectroniK potentiometer. Except for slight modification of the measuring circuit, this potentiometer is the same instrument introduced under the measurement of dyebath pH. A system like this is now being employed in a large southeastern finishing mill where they are setting nylon on an Industrial Radiant-Heat Machine.

The fact that the machine itself employs radiant heat is not the criterion for the use of a radiation pyrometer. This is purely coincidental. Nor is it absolutely essential to use a radiation pyrometer. Several other types of nylon heat setting machines use the ElectroniK potentiometer-type pyrometer with thermocouple actuation, and others use thermometry. The Radiamatic is pointed out as an outstanding method of temperature measurement when surface contact is impossible, where temperatures are critical, and where control response needs to be especially rapid.

Our hypothesis, that research proofs provide the basis for instrumentation, has far from embraced every aspect of finishing. We have touched on the more interesting and modern associations to illustrate how the instrument industry pulses the progress of the industries it serves. These data may further show how the findings of the textile research groups, coupled with the experience of instrumentation engineers, can improve processing and amortize the capital investment for instrumentation within a very short period of time.

With one last thought, here is what *Textile World* has to say on the subject:

> "Many new textile production techniques are 50 to 75% more efficient than those in use now. If plants could be fully modernized, and full use made of latest management methods, *Textile World* estimates that output-per-manpower would rise twenty per cent."

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Hopkins to Address Pacific Southwest Section

GILES E HOPKINS, technical director of the Wool Bureau's New York office, will be the guest speaker at the January 11th meeting of the Pacific Southwest Section at the Nikabob Cafe, Los Angeles, Cal. His subject will be "Highlights of Wool Research in the World."

Contribution——

THE TECHNOLOGY OF UREA-FORMALDEHYDE RESIN FINISHING*

J J BERNARD

Rohm & Haas Company

I INTRODUCTION

The possibilities for improvement in the basic properties of viscose-rayon fibers and fabrics were met around 1929 by the development of the urea-formaldehyde process for finishing *(1)*. Through this process the tendencies of rayon fabrics to wrinkle excessively, to shrink badly in washing, and to have poor wet strength were largely overcome, and these fabrics became commercially desirable in many applications, particularly in the clothing industry, for which viscose rayon had been rather badly suited. Since that time, the use of rayon fabrics has expanded without interruption, displacing more expensive materials and filling a definite need for the consumer.

Since the introduction of urea-formaldehyde-resin finishing to the textile industry, chemical manufacturers have constantly worked to develop and supply improved thermosetting resins with better stability, improved ease of application, and higher efficiency. While all of the problems of this method of finishing have not been overcome, important progress has been made in the understanding of the phenomena involved with consequent encouragement to further efforts. New types of resins have been developed which will impart handle to fabrics ranging from stiffness through full resiliency to silky suppleness, depending on the demand of the season. The improvements in fabric properties obtainable include a high degree of wrinkle recovery, resistance to shrinkage and stretch, more rapid drying, improved fabric handle and appearance, and increased wet strength and resistance to wet abrasion. Though the greatest quantity of urea-formaldehyde resins is used on rayon, cotton fabrics have been successfully processed for shrinkage control and wrinkle resistance. In addition, these resins are widely used in the production of the very popular durably embossed, glazed or moiré effects on cotton. While melamine-formaldehyde products have also achieved considerable importance in this field, this paper is limited to a general discussion of urea-formaldehyde finishing, with some emphasis on the problems involved, and the methods by which they may be overcome.

J J Bernard

The author describes the development of synthetic resins in the textile industry and discusses the various types used. The article covers the broad aspects of the technology of resins and in addition gives practical mill formulations covering stabilization, crush resistance and embossing, besides special effects in combination with water repellents and other finishes. The reasons for the development of odor in synthetic-resin-treated fabrics is explained, and the means of elimination are given. Some of the drawbacks concerning the low abrasion resistance of rayon fabrics can be corrected by lowering the amount of resin used.

Experimental methods are given for the determination of the amount of resin in a textile and for crease resistance.

II CHEMICALS USED

A RESINS——Basically, the chemicals used are reaction products of urea and formaldehyde, made under varied conditions to obtain products of varied properties and effects. The reaction conditions are controlled to produce water-soluble products in line with accepted methods of textile finishing. The chief differences between the products used lie in the degree of polymerization and the formaldehyde/urea ratio. They may be roughly classified into monomeric and polymeric products.

Monomeric products (e g, Rhonite 610) are the most widely used in the industry since these are the materials that impart the highly desired wrinkle-resistant effect. As supplied, they are not resins, but are mixtures of methylol ureas, produced in accordance with typical reaction shown in Figure A.

The mol ratio of formaldehyde to urea is generally in the range 1.2:1 to 1.7:1. Monomethylol urea has poor curing efficiency, while dimethylol urea tends to produce excessive losses in fabric tear strength and abrasion resistance. Consequently, the products giving optimum results are mixtures of monomethylol and dimethylol ureas, which give an average mol ratio in the range stated above. They are generally marketed as white products with a consistency between that of a paste and solid. They contain about 60% methylol ureas and may be completely dissolved in water. Products of this type must be stored at low temperatures (e g, below 50°F) to prevent premature condensation with consequent loss in water solubility. Properly stored, however, they have been used satisfactorily long after manufacture.

Modified monomeric urea-formaldehyde-type products, exemplified by Rhonite R-1, also are available. These produce very similar effects on fabric to those obtained with methylol ureas, but the durability to washing and the resistance to chlorine bleaching are improved, and the products

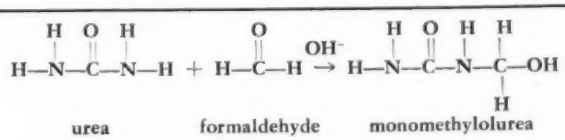

Figure A

* Received by the Editor of Proceedings on August 14, 1951.

are much more stable in storage and in the treating bath.

The polymeric reaction products are generally water-soluble, clear syrups, although emulsions of water-insoluble urea-formaldehyde polymers also have been prepared and used. The polymeric types may be used alone or in combination with simple methylol ureas. Under proper conditions of catalysis and curing, they are further polymerized to form insoluble higher polymers, which are durable to washing and dry cleaning. Polymeric types are used to stiffen fibers and to produce fiber-to-fiber bonding with resultant increase in the stiffness and body of the fabric. When used alone and in low concentrations, they increase the tensile strength and the abrasion resistance of viscose rayon.

B CATALYSTS——The system of impregnating fabrics with soluble urea-formaldehyde products to produce a durable finish requires further reaction of the materials within the fabrics. This is provided by the addition of certain catalytic agents and heat treatment of the fabric. The catalytic agents may be acidic or basic; either type will activate the urea-formaldehyde product. While improved results can sometimes be obtained through the use of an alkaline catalyst, such as $NaHCO_3$ or certain organic amines *(2)*, acid catalysis is used almost universally. The catalyst may be mild free acid, such as lactic or tartaric acid. It may also be an oxidizing agent, such as hydrogen peroxide, which will oxidize free formaldehyde to formic acid with resultant lowering of the pH *(2)*. This would not be recommended, however, in view of recent work, which has indicated that formate ions may promote the formation of amine odors during resin curing *(3)*.

Ammonium salts are commonly used for curing urea-formaldehyde products. Properly chosen, they provide very high bath stability together with efficient curing. During the drying of fabric treated with methylolureas and ammonium-salt catalyst, formaldehyde released by the methylolureas reacts with the ammonium ions, liberating free acid, which lowers the pH and promotes the desired reaction. Also widely used and more recently introduced are the acid salts of complex organic amines. These have the advantage of absence of ammonium ions. Ammonium ions react with formaldehyde to form methyl amines, which have an objectionable odor.

While some urea-formaldehyde resins are modified to give them ionic activity, most of them are nonionic and have almost unlimited compatability. However, highly acidic additives can cause loss of bath stability, while highly basic additives may interfere with proper curing of the resin by acid catalysts.

III APPLICATION PROCEDURES

A prerequisite for good results in urea-formaldehyde finishing, particularly where wrinkle resistance is desired, is high fabric absorbency. Therefore the fabric should be desized, scoured, or kier-boiled to remove natural waxes, warp size, and any other material which would interfere with the absorbency of the fibers. The fabric, when ready for finishing, should not be alkaline as this would normally interfere with acid catalysis of the resin. While the fabric should be dry, it should not be severely baked as this tends to make the fiber hydrophobic and reduces wet pick up.

If the fabric has been dyed, the color should be one that will have satisfactory lightfastness after resin treatment. Vat dyestuffs are preferred, but certain direct colors can be used with very good results. Changes in shade, particularly with direct colors, must be taken into consideration, and modifications in dyeing formulations must be made when necessary.

As stated above, the paste of methylolureas is readily dissolved in water. Proper plant procedure usually involves dissolving the product at about 140°F, then cooling by the addition of cold water. Other additives, such as a penetrating agent and a polymeric urea-formaldehyde syrup, may be added if required, and these are followed by the predissolved or prediluted catalyst. Bath temperature should preferably be below 90°F. Good bath stability usually is obtained at pH 5.5 - 7.0; below pH 5.5 the bath stability may become troublesome over long runs. In such cases, the most effective means of improving the stability is by cooling the treating mix, and in some plants this has been done by packing the padbox solution in ice. No problems of bath stability have been encountered with Rhonite R-1 (modified urea-formaldehyde).

It is desirable to obtain the highest possible resin fixation to impart maximum durability of the finish. To this end, a heavy nip is used on the pad, and most of the excess liquor is forced out of the fabric interstices so as to reduce the surface-resin content. Variations in resin content of the fabric are produced at will by changes in concentration of the resin solution, while fabric wet pick up is held essentially constant.

The drying and curing operations are often carried out separately, but sometimes as a single operation. Usually, drying is done on a tenter frame to set the fabric width, after which the fabric is cured in tensionless drying equipment, such as a loop drier. An alternative method is to dry and cure the fabric in a single pass through a loop drier, though in this case the width cannot be controlled. The fabric should be dried as evenly as possible to prevent excessive migration of the resin since solutions tend to migrate to the area of most rapid drying. A typical condition for curing a resin-treated fabric is a five-minute exposure to a temperature of 300°F. At higher temperatures the time is reduced, while at lower temperatures a longer time is required. The curing oven should be equipped with adequate exhaust facilities to remove formaldehyde fumes and other reaction by-products.

Besides the common curing oven, which depends on conduction for heat transfer, other mechanisms, such as infrared radiation units, are available. The latter equipment utilizes the ability of the fiber to convert the energy of the radiation into heat *(4)*. On an experimental scale, radio-frequency emissions have also been used to dry and heat textiles. This type of energy is said to be extremely rapid and to produce very even heating, even to the interior of a yarn package. However, radio-frequency methods have not, to our knowledge, attained commercial application for curing resin-treated fabrics.

IV ODOR DEVELOPMENT AND AFTERWASHING

During the heating process, which converts the urea-formaldehyde product to an insoluble higher polymer, there is usually decomposition of the resin to produce organic amines. In addition, if an ammonium-salt catalyst is used, amines are formed through the reaction of the ammonium ions and formaldehyde liberated by the resin. Since the curing takes place under acid conditions, the amines are usually present as amine salts, and the fabrics immediately after curing rarely smell of amines. Under proper conditions of heat and moisture, however, and particularly with the assistance of alkalinity, which may in some cases be introduced through perspiration, the amine salt will dissociate, releasing the volatile and odorous amines as shown in Figure B.

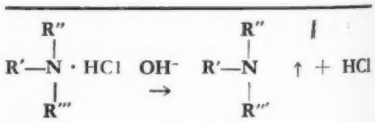

Figure B

We believe that this is the chief cause of odor development in fabrics. The best approach to the elimination of amine formation during curing would seem to be two-fold:

1. Use of nonammoniacal catalyst.
2. Curing under such conditions as will not decompose the resinous product but will accelerate the condensation reaction desired. (It is questionable whether such conditions can be found.)

It has been suggested that amine devel-

opment during curing can be reduced or avoided by adding urea to the resin-treating solution. However, excessive concentration of urea (e g, more than 2.5% based on resin solids) will interfere with proper curing of the resin *(3)*. We have mentioned under the heading "Catalysts" the reaction between formaldehyde and ammonium salts, which results in an increase in hydrogen ion concentration in the treating bath. Obviously, the use of a "formaldehyde acceptor", such as urea, will introduce competition for the available formaldehyde and may interfere with the normal process by which the required acid pH is developed. For this reason we recommend an analysis for resin fixation (see "Special Test Methods") on fabrics treated with urea-formaldehyde resin and additional urea until it is established that satisfactory results are being obtained.

Until a method is devised to prevent the formation of amine in a fabric, however, the best safeguard against amine consists of thorough afterwashing of the cured fabric. This should be done under alkaline conditions since the by-products of the condensation are soluble in alkaline solution; and very thorough rinsing should follow. If the afterwash successfully removes all of the amine, additional amine will not usually develop in the fabrics under normal conditions of use. Practical experience indicates that odor, when present in urea-formaldehyde-treated fabrics, can often be attributed to faulty afterwash or to the absence of afterwashing from the process.

V VARIOUS FINISHES

A THE CREASE-RESISTANCE PROCESS——The mechanisms of wrinkle resistance in fabrics composed of cellulosic fibers have been described *(5)*. The property of wrinkle resistance can be produced either by the polycondensation of thermosetting resins within a cellulose fiber or by the reaction of cellulose molecules with a cross-linking aldehyde, such as formaldehyde or glyoxal. The changes in fiber properties include increased elastic recovery, decreased extensibility, increased stiffness and hydrophobicity, and, in the case of viscose rayon, increased tensile strength. To obtain maximum wrinkle resistance, it is important to maintain the multifilamentous nature of the yarns since this property allows the individual fibers to change position during creasing and, in this manner, to relieve part of the applied stress of creasing. Stiffening agents that reduce the multifilamentous nature by fiber bonding adversely affect crease resistance, while softeners and lubricants are beneficial.

Monomeric methylolureas, which penetrate and saturate the interior of fibers, are widely used and are polymerized through the action of heat and catalysis within fibers. A typical formulation for treating an all-spun-viscose-rayon fabric for wrinkle resistance is as follows:

Pounds in Total Volume of 100 Gallons
300 Rhonite 610
4 diammonium phosphate
½ Triton K-60 (cationic softener)
½ alkylated aryl polyether alcohol

B DIMENSIONAL STABILITY — The property of dimensional stability is concurrently imparted by the crease-resistance process described above, though certain modifications in formulas may be desirable when stabilization is the prime objective. Shrinkage control is the result of increased hydrophobicity of the fiber, together with the stabilizing effect of the physical presence of the resin in the fiber. Reduction in fabric stretch is due to the reduced fiber extensibility produced by the treatments and is probably as important as wrinkle resistance in making rayon fabrics suitable for suiting and dress fabrics where any tendency toward "bagginess" in the garments would be very objectionable. It has also been found that a small amount of warp tension applied during the initial drying of the fabric and followed by curing, afterwashing, and drying in the relaxed state tends to improve dimensional stability. The stretch initially imparted would be in the range of 3-8% *(6)*.

Reactant-type resins are commonly used to obtain the highest dimensional stability, and the following formulation is typical for an all-viscose-rayon shirting fabric:

Pounds in Total Volume of 100 Gallons
120 Rhonite R-1 (reactant type)
6 Catalyst G-8 (organic accelerator)
½ alkylated aryl polyether alcohol

C DURABLE CALENDER FINISHES ——Large quantities of thermosetting resins have been used to produce durable calender finishes, such as glazed chintzes and embossed cottons. These finishes have made possible a considerable upgrading of some relatively unglamorous cottons, such as the common 80 x 80 plain-weave fabric. While the simple methylolureas perform satisfactorily, the highest durability has been obtained with reactant-type resins, particularly for embossing. A typical formula for embossing is as follows:

Pounds in Total Volume of 100 Gallons
85 Rhonite R-1
8 anionic softener
1 ammonium chloride
½ alkylated aryl polyether alcohol

A typical formulation for a glazed finish with regular handle:

Pounds in Total Volume of 100 Gallons
85 Rhonite R-1 (reactant)
10 Rhonite 610 (monomeric urea-formaldehyde)
10 Rhonite 414 (polymeric urea-formaldehyde)
10 anionic softener
1 ammonium chloride

The fabric is padded through the appropriate formulation, dried to about 10% moisture content, glazed, embossed or Schreinered as desired, then cured and afterwashed.

D COMBINATION FINISHES —— Urea-formaldehyde resins can be used in conjunction with color-fixing agents in one bath applications. The resins alone improve the wash fastness of direct colors, and, when they are used together with nitrogenous-type color-fixing agents, a very high degree of fastness can be obtained. The color-fixing agents are often acid in nature, and no added catalyst is ordinarily needed for the resin, although this depends on the choice of color-fixing agent.

Water repellency can be obtained by incorporating a durable water repellent in the resin finishing bath. Indications are that, when agents of the Zelan type are used, the catalyst may be omitted since the Zelan provides the needed acidity. The amount of alkaline buffer is reduced and may, in some cases, even be eliminated since the resin provides a neutralizing action and helps to protect the rayon fabric from acid damage.

Many unusual and varied effects may be attained by the use of urea-formaldehyde resins in conjunction with other textile-finishing materials, such as starches and gums, natural and synthetic softeners, and thermoplastic resins. Aqueous dispersions of thermoplastic polymers can be used in conjunction with urea-formaldehyde resins to obtain various modifications of handle not imparted to the fabric by either type of resin alone. Increased fullness, body, and drape are among the characteristics imparted to the finished fabric.

A typical formula for medium-weight spun-rayon dress goods is as follows:

Pounds in Total Volume of 100 Gallons
238 Rhonite 610 (monomeric U-F resin)
25 Rhoplex WN-66 (nonionic acrylic dispersion)
4 diammonium phosphate

In the preparation of this mix, the Rhonite 610 is dissolved as usual in ½ of the total amount of hot water. This solution is diluted with cold water almost to volume to bring the temperature to a point below 100°F. Rhoplex, prediluted 1:1 with water, is added next, and then the predissolved catalyst. The liquor is now brought to final volume. The fabric is thereafter handled in the normal manner. This particular finish imparts to the goods a full, resilient hand along with stabilization against shrinkage.

STARCH FINISHES——Urea-formaldehyde resins have the property of insolubilizing starch and thereby of increasing the wash-fastness of this widely used fugitive finishing material. As a rule 20% of resin

solids, based on weight of dry starch, is recommended. The starch mix is cooked as usual, and the resin is added during the last 5 minutes with continued agitation to insure thorough mixing. Below are listed formulations which illustrate the use of the starch-resin combination to obtain semi-permanent finishes.

COTTON WARP, RAYON-WOOL-HAIR FILLING FOR INTERLINING FABRIC

Pounds in Total Volume of 100 Gallons
22 RT Gum
75 Rhonite 313 (polymeric U-F)
75 Rhonite 610 (monomeric U-F)
1 alkylated aryl polyether alcohol
1 ammonium chloride

The gum is cooked at the boil for 10 minutes in 1/3 the volume of water. The resins are predissolved and added to the mix. Cold water is added, and then the predissolved catalyst and the surfactant. The temperature of the finished mix is 100-110°F. The resin-starch mix should be applied on a pad. Drying, curing and afterwashing follow as recommended.

COTTON LENO BAG MATERIAL

Pounds in Total Volume of 50 Gallons
37 RT Gum
15 Rhonite 610
1/3 alum

The gum and Rhonite 610 are mixed into a cold-water slurry and are heated to 190°F. Alum is added, and the mix is cooked 5 minutes. The fabric is padded, dried and cured as recommended.

VI PHYSICAL PROPERTIES OF TREATED FABRICS

Urea-formaldehyde treatments on viscose rayon increase the wet and dry tensile strength, decrease tear strength, decrease dry abrasion resistance, and increase wet abrasion resistance. The effects on cotton are similar, but tensile strength is reduced.

The decrease in tear strength of viscose rayons is not usually of such magnitude as to cause difficulty. In any case, the incorporation of a softener or lubricant in the resin-treating solution or as an aftertreatment is helpful for increasing tear strength because lubrication allows the yarns and fibers to change position with the result that the applied stresses are distributed over a much greater fabric area. Conversely, stiffening agents, including polymeric resins, tend to reduce tear strength.

The effect on dry abrasion resistance in the case of washable fabrics, such as shirtings, is more than compensated by an increase in wet abrasion resistance. The fabrics then become more durable to laundering *(7)*. In the case of suiting fabrics, which are not washed, dry abrasion resistance is of considerable importance as an indication of good wearability. It is likely that abrading forces of greater magnitude are applied in the actual wearing of outer garments, such as suits and jackets. Abrasion resistance should be evaluated as much as possible in comparison with the abrasion resistance of fabrics that have given satisfactory wear in garments for the end use desired. The resin content of the fabric should not be allowed to exceed the amount required for adequate wrinkle resistance. Softening agents, which provide fiber-to-fiber lubrication, can decrease dry abrasion resistance. This may be due to increased ease of removal of fibers by the "plucking" action of the abrading surface. Conversely, small amounts of polymeric urea-formaldehyde resins, which tend to provide fiber-to-fiber bonding, generally increase dry abrasion resistance. Examples of the latter phenomenon are shown below:

EFFECT OF RESIN FINISHING ON ABRASION RESISTANCE

	TBL Abrasion Cycles	
Treatment	*Rayon Challis*	*50/50 V/A Gabardine*
Water control	3670	14,600
6% Rhonite 480 + 0.1% NH_4Cl	5100	24,100

VII CHLORINE RETENTION PROPERTIES

The urea-formaldehyde products have an affinity for chlorine in bleaching solutions, as have melamine resins. Hypochlorite solution reacts with the nitrogenous resin, replacing hydrogen to form a chloramine or chloramide. As these compounds are unstable at higher temperatures, subsequent ironing causes oxidation of the fabric accompanied by scorching or charring. The amount of chlorine pickup from bleaching solutions has been shown to increase with increasing concentration of the bleach solution, increased time of bleaching, and increased bath ratio *(8)*.

While chlorine will be removed if the fabric is antichlored with a reducing agent, this step is often omitted, particularly in the home laundry. For that reason, many finishing plants prefer to resin-treat only colored fabrics, which are not likely to be bleached. Garments made of white resin-treated fabrics should be labelled to caution against chlorine bleaching. The newer reactant-type resins (e g, Rhonite R-1) have been found to have much more resistance to chlorine than the older urea-formaldehyde products and offer a certain amount of safety compared with simple methylolureas or methylolmelamines.

VIII SPECIAL TEST METHODS

A A METHOD FOR DETERMINING THE FIXATION OF UREA-FORMALDEHYDE RESIN ON FABRICS —— Urea-formaldehyde resins in any stage of polymerization are decomposed by hot 0.1 *N* hydrochloric acid into products having great solubility and having no tendency to resinify when the solution is cooled. Therefore, to analyze fabrics for urea-formaldehyde resins, the samples are treated under the proper conditions with hydrochloric acid to remove the resin, and, from the loss in weight, the resin content of the fabric can be calculated.

The general procedure is to use two samples from the fabric to be tested for each analysis. One of these samples is washed to remove any soluble resins; then both samples are extracted with acid. The amount of material removed by the acid from the unwashed sample is reported as the total resin content, and that removed from the washed sample is reported as fixed resin. The ratio of these two values gives the resin retention.

This method is obviously not specific for the resin, that is, any extractable matter and any loss of weight due to lint, solid fillers, and finishing compounds will be reported as resin. It is therefore necessary to know the history of the cloth in order to evaluate properly the analytical results. This test is most often used on cured fabric, taken before the afterwashing operation.

PROCEDURE——If resin has been applied to a thoroughly scoured and clean fabric, the following procedure gives the total resin content and the fixed or wash-fast resin content from which the resin retention can be calculated. Directions are given here for carrying out analyses in duplicate.

1. From each fabric to be analyzed, cut four 8-inch squares. These should be cut on the bias so that the warp and filling yarns are diagonals of the squares. Smaller samples can be used if the amount of fabric available is limited or if samples of this size are inconvenient to handle on the available equipment; but the use of smaller samples necessitates greater care in han-

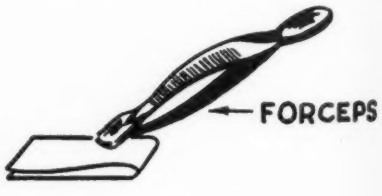

Figure 1

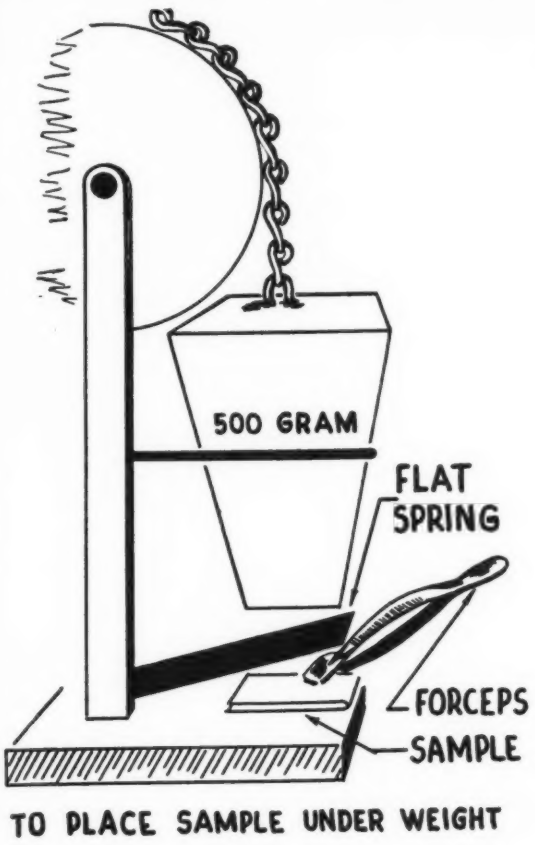

Figure 2

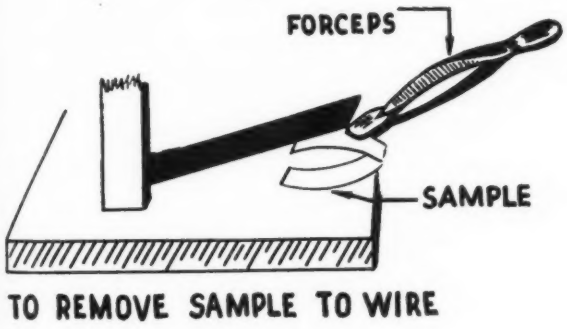

Figure 3

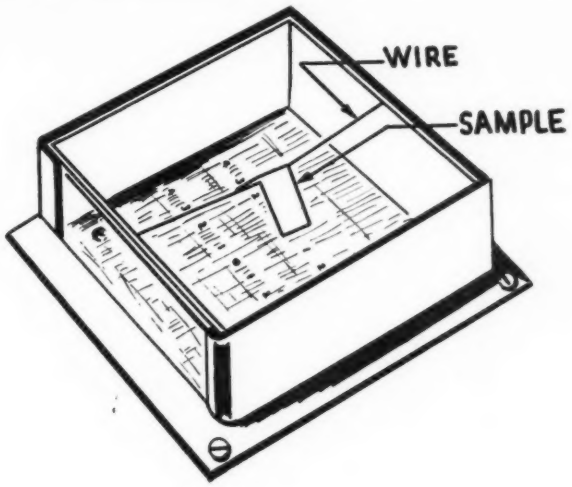

Figure 4

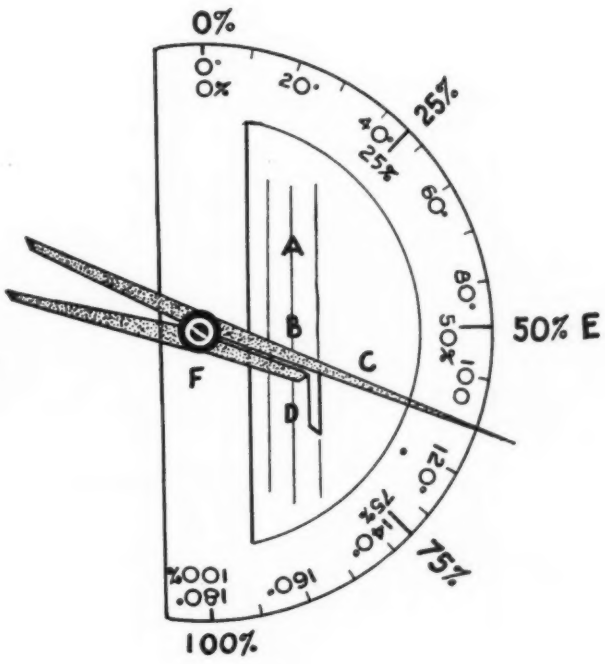

Figure 5

A. Protractor Face
B. Sample Holder
C. Scale Pointer
D. Fabric Sample
E. Crease-Recovery Scale
F. Pivot Point of Holder

dling and weighing.

2. In order to reduce fraying and consequent fiber loss to a minimum, fold each corner in twice about ¼ inch and sew across with a loose stitch so that the corner of the sample is held inside the hem thus formed.

3. Place two of the squares in at least 100 times their combined weight of a boiling 1/16% soda-ash solution, turn off the heat and allow the samples to stand for 20 minutes with gentle stirring. Remove from the bath and give samples at least four rinses in warm water (90-100°F), squeeze, and dry. This procedure removes resin which was not insolubilized by curing together with any soluble matter other than resin.

4. Place both the washed and the unwashed pieces in an oven and dry them to constant weight.

For these analyses an oven equipped with an analytical balance to weigh samples in the oven has definite advantages with respect to both speed and precision over an ordinary analytical balance used in connection with a desiccator. If the former equipment is available, weigh each sample to the nearest milligram after they reach

constant weight. Otherwise, quickly transfer the samples from the oven by means of tongs to weighing bottles in a desiccator containing any good desiccant and allow them to cool for at least 20 minutes before weighing them.

5. Place the four weighed samples in at least 100 times their weight of 0.1 *N** hydrochloric acid at 150° F for 25 minutes and stir them gently. Transfer to a large volume of water at 175°F. Allow them to remain in the hot water about 5 minutes, remove, rinse sufficiently to remove all traces of acid, squeeze, and dry.

6. Weigh samples again to constant weight by the procedure used in making the initial weighings.

* Prepared by mixing 1 volume of ordinary concentrated hydrochloric acid (35-37%) with 99 volumes of water.

B INSTRUCTIONS FOR RUNNING CREASE-RESISTANCE TESTS —— Based on the Modified Shirley Institute Tester *(9)*.

1. Condition the fabric to be tested a minimum of 48 hours at 65% RH and 70°F.

2. Cut strips from the fabric, each exactly 4 x 1 cm. Avoid handling the strips with the fingers, especially in the center portion where the crease is to be made. Use forceps for holding the strips whenever possible.

3. Fold a strip by bringing ends together and hold with cover glass forceps as shown in Fig 1. Insert folded strip under the flat springs of the device shown in Fig 2, and place 500-gram weight on the spring directly above the folded sample for exactly 5 minutes. It is not necessary to use the TBL tester, but one may be used when convenient.

4. At the end of 5 minutes remove the weight and pick up the sample with forceps, which should hold only one thickness of the fabric at a point slightly below the crease, as shown in Fig 3. As you hold the sample with the crease upward, insofar as possible, transfer the sample to a wire so that it may relax and recover to a stable angle. Allow the sample to hang on the wire for 3 minutes (Fig 4).

5. Remove the sample with forceps and place it on end in the jaws of the holder (B, Fig 5) so that the end of the jaws are approximately one millimeter from the crease. The holder is rotated in the appropriate direction until the free end of the sample hangs vertically. The angle, or % recovery, of the sample is then read by the position of the pointer (C, Fig 5).

(1) % Resin in fabric before wash or *total resin* is given by

$$\frac{100 \times (\text{Wt unwashed, before ext}) - (\text{Wt unwashed, after ext})}{(\text{Wt unwashed after extraction})}$$

(2) % Resin in fabric after wash or *fixed resin* is given by

$$\frac{100 \times (\text{Wt washed, before ext}) - (\text{Wt washed, after ext})}{(\text{Wt washed, after extraction})}$$

(3) % Resin Retention is given by

$$100 \times \frac{(\text{Eq 2})}{(\text{Eq 1})} = 100 \times \frac{\%\ \text{Fixed Resin}}{\%\ \text{Total Resin}}$$

Note: The resin content is customarily calculated in terms of % add—on to the original fabric.

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(4) Technical Bulletin, Sill Industries, N Y C.
(5) Gruntfest and Gagliardi, *Ind Eng Chem* 41, 760 (1949).
(6) Philadelphia Section, *Am Dyestuff Reptr* 38, 822 (1949).
(7) Gagliardi and Nuessle, *Am Dyestuff Reptr* 40, 397 (1951).
(8) Nuessle and Bernard, *Am Dyestuff Reptr* 39, 396 (1951).
(9) *Shirley Institute Bulletin*, Vol XII, No 8 (1939).

WNE Meeting Reports

September 28, 1951
Rapp's Restaurant, Shelton, Conn

THE first meeting of the 1951-1952 season for the Western New England Section was held on Friday, September 28 at Rapp's Restaurant, Shelton, Conn. The speaker of the evening was Bert R Celentano, General Dyestuff Corporation, who spoke on "Naphthols on Synthetics".

The following were elected to office for 1952:

Chairman: R C Geering, Princeton Knitting Mills

Vice Chairman: C R Schilkowsky, Sidney Blumenthal & Co

Secretary: A S Nyquist, American Cyanamid Co

Treasurer: S V Vaniotis, Sidney Blumenthal & Co

Sectional Committee: J B Dick, Pond Lily Co; O Edelstein, Pond Lily Co; N J Glade, American Cyanamid Co; E J Troianello, American Cyanamid Co

Councilor: J E Lynn, American Cyanamid Co.

November 9, 1951
Rapp's Restaurant, Shelton, Conn

PAUL J CHOQUETTE, General Dyestuff Corporation, was the chief speaker of the evening at the November 9th meeting, which was also held at Rapp's Restaurant. His discussion centered about the progress that has been made in dyeing the newer synthetic fibers.

J Robert Bonnar, national vice president, also was present and spoke briefly.

Respectfully submitted,
A S Nyquist, *Secretary*

UTI Student Chapter Meeting Report

October 11, 1951

A meeting of the Utica Technical Institute Student Chapter was held on Thursday afternoon, October 11, 1951, with Chairman Eugene Suozzo presiding. Plans were made for a dinner meeting for new students. John Gargash and John Patterson were appointed a refreshment committee. It was voted that a meeting be held on the last Thursday evening of each month. For the October 25 meeting the Secretary was instructed to invite a speaker from the Hudson-Mohawk Section on the subject, "Ideals and Purposes of the American Association of Textile Chemists and Colorists."

Respectfully submitted,
Norman R Thompson, *Secretary*

LAPEL BUTTONS FOR MEMBERS

These buttons bear the seal of the AATCC and may be purchased by members in good standing from the National Secretary at $2.00 each.

DR HAROLD C CHAPIN
Lowell Textile Institute
Lowell, Massachusetts

ABSTRACTS

Bleaching Textiles with Sodium Chlorite

Hundt and Vieweg, *Textil Praxis* 6, 439-443 (1951).

A great advantage in the use of sodium chlorite for bleaching cellulosic textiles is that this strong oxidizing agent does not react with cellulose; a bleaching effect on noncellulosic portions contained in crude cotton yarns, e g, lignin incrustations, improves the results. The considerable speed of the bleaching action makes it a very useful agent superior to other oxidizing bleaching substances. It cannot, however, be used in bleaching animal fibers, since it strongly discolors them at times; here bleaching with peroxide is suggested. From a practical point of view the sodium chlorite, having no destructive action on the cellulosic molecule, makes it possible to work without special care.

Generally the process, which is based on liberation of ClO_2, is carried out in weakly acid solutions at temperatures above 50° C. When bleaching in alkaline media is desired, hypochlorite must be added though acid bleaching without hypochlorite is preferred. It has been suggested that chlorite be used in alkaline baths adding formaldehyde and phosphates; these methods, however, are said to be unsatisfactory up to now.

Bleaching is best carried out in an organic acid medium (acetic or formic) at a pH 3.8-4.0 and at temperatures between 80-85° C, although boiling baths had no visible deleterious effect. The addition of buffering substances, such as phosphates or polyphosphates, is advisable. Bleaching on the winch has the advantage of lending an additional scouring effect, provided the appropriate textile assistants are combined with chlorite.

The vessels used in applying chlorite solutions may be built of stainless steel, which, for practical purposes, is not attacked; a depolarizing agent, e g, an aluminum strip suspended in the bath and out of contact with the walls of the bleaching vessel, better protects the steel material from any corrosion. Other construction materials such as hardwood or vessels coated with chlorinated rubber compositions can be used as well. In processing fabrics that are difficult to completely bleach it is suggested that the chlorite be combined with a peroxide treatment. A patent application filed by one of the manufacturers (Degussa) suggests the application of both agents in a single bath and the gradual adjustment of pH from the acid range (chlorite) to the optimal basic range (peroxide). Practical formulas for bleaching staple rayon, spun rayon, linen and cotton are offered. (In German)—P W

Use of Eulan as a Mothproofing Agent

Drapal, *Textil Praxis* 6, 443-44, 1951.

Mothproofing agents, such as naphthalene, camphor, p-dichloro benzene etc, that were formerly applied had no durable protecting effect because of their high volatility. The research staff of Farbenfabriken Bayer in Leverkusen (Germany) has developed since 1928 some new compounds of better resistance. They are known in the trade as "Eulans" ("New," "CNA," "NK," "NKF extra," and "BLN").

"New" and "CNA" are applied in the acid dyebath proper and "NK" and "NKF extra" in neutral aftertreating solutions at room temperature, while "BLN" is solvent soluble and therefore especially useful for dry-cleaning used materials. The durability of effect and resistance to light and washing for all except "BLN" are stressed.

"Eulan" brands do no harm to health nor do they impair the original touch of the fabrics. "CNA" is applied in the acid wool dyebath like a dyestuff at a ratio of 3-4% maximum, calculated from the fabric's weight, and is completely exhausted at the end of the dyeing operation. In contrast to "New" and "CNA," the brands "NK" and "NKF extra" are applied in neutral aftertreating solutions, a procedure analogous to that used in direct dyeing. The optimum temperature here is 55-60° C but even baths maintained at much lower temperatures (20°C) proved efficient. These brands are important for heat-sensitive materials (clothing, hair, bristles, feathers, furs, etc). "BLN" is recommended for used goods and for materials that are generally not resistant to treatment in aqueous solutions. The manufacturers of "Eulans" offer their service for checking the effect of the products on all kinds of finished goods by biochemical tests. (In German)—P W

Printing Textiles by Photographic Methods

Delattre, *Textil Praxis* 6, 513-17, 1951.

This paper, read at a meeting of the French Association ACIT in Lille and published in *Teintex* 3, 129 (1951) refers to methods published in recent times in various periodicals.

Brit P 604, 697 of Bleacher's Ass'n (cf *Am Dyestuff Reptr* 38, 583, (1949)) discusses the application of vat dyes combined with dichromate-gelatine, exposing under a screen to actinic light rays (thereby hardening the light-exposed areas), removing the nonhardened portions by washing and developing the vats on the hardened areas by reducing and reoxidizing as usual. The author discloses that he did not try out this process in practice.

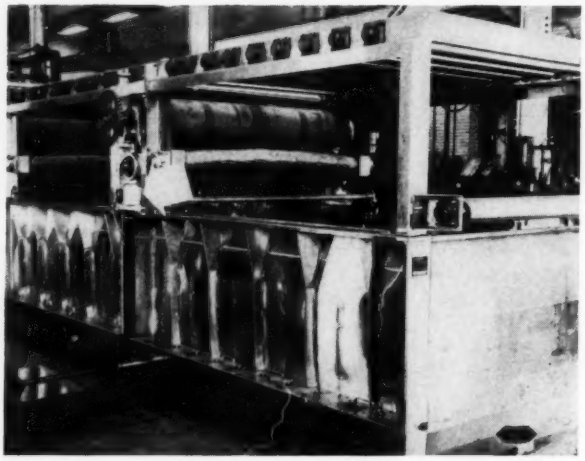
Another method recommended by M Lantz of Soc Mat Col de Saint Denis-Francolor (French P 760, 788 and 795, 558) is based on the stability of antidiazosulfonates in alkaline solutions in the absence of light. Alkaline coupling agents can be combined with these diazosulfonates, which decompose under the influence of light into free diazo compounds coupling with the naphthol component. Photochemical compounds of this type were expected to give good results, e g, in the application of "Photorapid" dyes on textiles, replacing the acid development by light exposure in a warm moist atmosphere; results are not promising up to now, however. Some suggestions are offered to improve the application of these dyes, such as aftertreating the "Photorapid" impregnated and developed pictures with another diazo solution to combine with excess coupling agents or by using a combination of diazosulfonates plus coupling agents (thus, the "Photorapids") with a nitrosamine, the dye being developed in acid solutions.

An American method, probably covered by the US patents of General Aniline and Film Corporation and described by DuParc in *Industrie Textil*. (Jan 1951) is characterized by the combining within the same impregnating bath of a stabilized diazo compound, a coupling component, and stabilizing and wetting agents; the light exposed picture is developed with gaseous ammonia to insoluble azo dyes. Several advantages and disadvantages of this method are discussed.

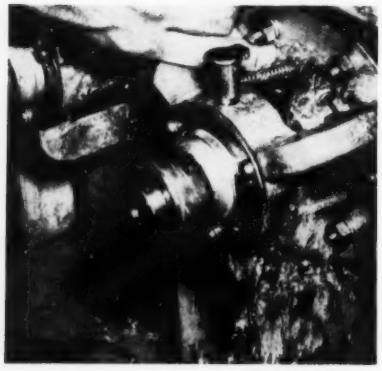
In a method developed by Wasteels that has not yet been described in other publications, a special device is employed. A series of strong electric lamps is placed in the center of a rotatory drum, which is covered by a circular screen or film carrying the pattern. This device is intended for developing stabilized diazosolutions by a separate aftertreatment with alkaline coupling components. This method gave very good results and contrasting effects when the work was carried out under carefully controlled conditions. The impregnating solution is free of any coupling agent, thereby precluding premature coupling.

Good prospects are seen in further developments of photographic printing methods regarding substitution of inexpensive films for engraved copper rollers, reproduction of perfect half-tone prints, reprinting of old designs, use of natural objects such as flowers or leaves for designs and application on pure synthetic fabrics such as nylon or vinyl fabrics. (In German)—P W.

NEWS



Rodney Hunt Tensitrol Open Width Washer With Overhead Framework.
(Arrow indicates new type pressure cell replacing the air cylinder on squeeze rolls).



Fingertip pressure releases face seal to flush out water on the bottom drive rolls.

• New Design Features on Tensitrol Open-Width Washer

Rodney Hunt Machine Co, Orange, Mass, is now supplying the Open Width Tensitrol Washer with an overhead framework on which top idler rolls are mounted. This design is offered as a choice along with the model having idler rolls mounted directly on tub ledge. For additional flexibility, counterflow water partitions are now so designed as to be removable.

Important advantages in operating efficiency and maintenance are being obtained with two new mechanical devices, the Company claims.

A new type pressure cell replaces the air cylinder for applying pressure on light and medium squeezers. When machine is turned off the lower roll (now connected with the new pressure cell) drops away from the top roll automatically, thus preventing damage of rolls from their contact while not in use.

Side to side pressure differences are eliminated because friction surfaces which might effect pressure on either side are reduced, it is claimed. Exhaustive tests made in the Rodney Hunt Laboratory reportedly indicate that the life of the cell will be equal to many years of operation in the average mill.

The driven bottom rolls are now faced with a new type seal, which, the company states, practically eliminates loss of liquid around the journal of the bottom roll. At the same time, they point out that friction is reduced, limiting braking action against the bottom roll to a minimum. An appreciable drop in power consumption has been recorded where these seals have been installed, according to Rodney Hunt reports. A touch of the finger will release seal pressure and allow water to flush away lint or other debris from the bottom of washer.

• Combination Fungicide For Textiles Introduced By Nuodex

A new combination fungicide has been engineered by Nuodex Products Co, Inc, of Elizabeth, New Jersey, to provide mildew resistance to cotton duck used for tents, canvas containers, etc, in accordance with government specification MIL-D-10860.

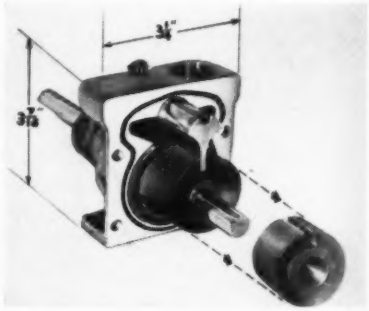
This product, Nuodex Copper QN-18%, is said to be easy to incorporate in total treating compositions since it is a readily dispersible paste that flows at room temperature. According to reports, it combines copper hydroxy naphthenate and copper 8-quinolinolate in one product.

Other products which the government has specified should be protected in this manner include: tarpaulins, barracks bags, arctic sleeping bags, belts, leggings, truck covers or tops, various weights of duck used for work gloves, shoes with canvas uppers, and light weight duck used in laminated clothing.

• New Eco Pump Features Teflon Impellers

A new line of Eco Chemical Process Pumps, featuring as standard equipment Teflon impellers, a Teflon-packed stuffing box and a choice of Teflon or Graphitar self-lubricating bearings, has been announced by Eco Engineering Co, 12 New York Ave., Newark 1, N J.

Manufactured with stainless steel pump casings and shafts, the "Allchem" pumps are reported to be compact enough for small volume process or laboratory work, and for use in transfer, pilot plant and in-



A Portion of an Eco "Allchem" Pump Showing the Teflon Impeller

dustrial applications. They are of positive displacement, reportedly operating in either direction in capacities from 1-20 gpm and pressures up to 40 psi with excellent lift.

Eco points out that the pump is universally applicable because of its Teflon composition, thereby facilitating standardization. After the initial priming, the self-priming feature "takes over". Foaming, aeration and pipe line corrosion are reported prevented with the patented Eco pumping motion.

The tough and resilient Teflon impellers are not subject to thermoshock nor to galvanic attack by pitting or erosion, the company states, nor will they swell, shrink, harden or crack. The manufacturer points out that they have an extremely low coefficient of friction and zero moisture absorption plus unusual nonadhesive properties. They reportedly can be stored indefinitely.

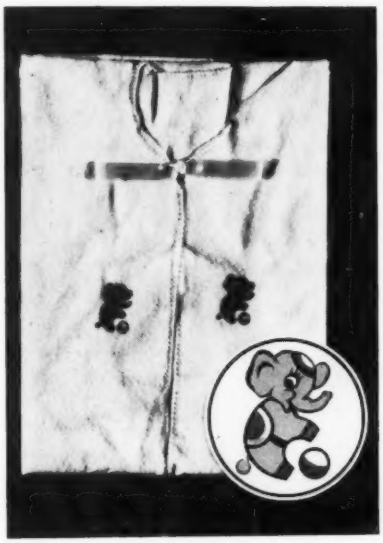
These Eco pumps are available in pump port sizes ⅜", ½" and ¾" pipe tap, with Pulley-Drive Base Assembly, or Base Mounted Direct connected with electric motors. The pump housing may be obtained in fully machined nonporous #316 Stainless Steel Precision Castings or Naval Bronze Forgings. The pumps are available with many optional features, in 4 ports and in base mounted units with electric motors.

• Two New Screen Specialties

Two specialties for fine screening, pulverizing and filtering have been introduced to the trade by the Pyramid Screen Company, 30 Church St, New York 7, N Y. Both are perforated plates.

"BF Conical Hole Perforated Plates" are made with a wide range of perforation sizes—as fine as 1/100" and larger. The perforations are reported to be conical with the small end of the hole pointing against the stream of the material being pulverized. Particles which are small enough to pass through the small end are said to continue on through without blinding, insuring more effective screening area and a more uniform product. Plate thicknesses are two to three times those of straight round or slotted hole plates with the same size perforations, which the manufacturer states, means greater strength and rigidity and longer life.

"BY Electrolytical Perforated Plates" are made of pure nickel with conical holes designed to prevent blinding. Perforations reportedly can be as fine as 350 mesh. Plate thicknesses are up to four times the size of the perforations, insuring greater strength and rigidity and longer life, it is stated.



"Textile Cal" Fabric Decal

• Fabric-Permeating Decal

The American Decalcomania Company, Chicago, Ill, is reported to have perfected a new, longer-lasting decal which actually permeates the fabric itself. Laboratory tests are said to have shown the item, introduced to the trade as "Textile-Cal", to withstand repeated washings without loss of vivid color. It is claimed that they can be dry cleaned with naptha without harm.

Color combinations and decorative effects are said to be unlimited with this durable decal, which will not flake or fall off, according to the manufacturer.

In addition to its use in spot decorating and labeling, the new decal is also reported to be finding application in the marking insignia and instruction on Army and Navy jackets, sleeping bags, etc, in conformance with government specifications.

• Electrap System Introduces Economy in Handling Condensate Drainage

A cost-cutting method of returning high-pressure condensate to the boiler room has been engineered by the Johnson Corporation, Three Rivers, Michigan, around their "Electrap", an electrically operated pumping trap that is designed to replace the conventional centrifugal pump and receiver.

The Electrap is a closed system for returning heat units to the boiler room intact. Operation is reported completely automatic. It consists primarily of a chamber, a three-way solenoid valve, and two motionless electrodes which determine the operating cycle; there are no moving parts in or on the Electrap proper.

• Pfister Adds Naphthol AS-KB to Line

Naphthol AS-KB has been added to the line of Naphthols manufactured by Pfister Chemical Works, Ridgefield, N J. The product is said to give shades similar to those obtained with Naphthol AS-BS, but of greatly increased light fastness. It is further claimed that colors derived from this new Naphthol show a brighter blue tint than those derived from any other Naphthol. Naphthol AS-KB coupled with Fast Scarlet R reportedly produces a bluish pink possessing exceptional light fastness properties.

• AMC Producing Two New Monomers

American Monomer Corporation, Leominster, Mass, has announced first commercial production of two new monomers, Ethylene Glycol Dimethacrylate and Diallyl Maleate for use as polyesters, cross-linking agents in copolymerization, resins, rubber chemicals, coatings, drying oils and pharmaceuticals.

The Diallyl Maleate is supplied uninhibited and reportedly can be used as received. The Ethylene Glycol Dimethacrylate contains inhibition which, the manufacturer states, should be removed for optimum results.

Prices and specific data pertaining to purity, boiling point, density, refractive index, stabilizers, etc, may be obtained from American Monomer Corp.

• Zimmerman Introduces Two Sizing Products

Zimmerman Associates, Chemists and Engineers, Guilford College, North Carolina, have announced the introduction to the general trade of two new products for the sizing of cotton warp yarns.

The first, Glyozole*, is a 100% active liquid and serves primarily as a starch plasticizer, while the second, Glyotal, is a 100% active solid and serves as a softener for the starch size. Both are used in conjunction with starch in the sizing of cotton warp yarns and are reported to have been thoroughly tested in the laboratory as well as in a large sheeting mill in the South for a period of two years. The products have shown outstanding performance in weaving efficiency, decreased shedding, ease in removal of size during desizing operations, ease in the adaptation of a formula for a given weave room, and economy in cost, according to the manufacturers. Both products may reportedly be used with or without a starch homogenizer.

* Patent pending, trade mark registered.

• Nylon Warp Sizing

American Polymer Corporation, Peabody, Mass, is currently producing polyacrylic acid under the designation Polyco 437 as a base for nylon warp sizes. They claim that the product is unexcelled for effectiveness and versatility for use on yarns for tricot knitting, spun nylon knitting and weaving.

Polyco 437 is an aqueous solution of polyacrylic acid which, reportedly, is easily diluted with tap water and easily removed after weaving by scouring. Adhesion to nylon is said to be outstanding. Its use also is said to prevent excessive soiling during processing of yarn.

For further information write to American Polymer Corporation for data sheet #P-31.

• Several Advantages Cited for New Carboypump

A new Carboypump, designed by the Dow Chemical Company with revisions by J A Glover, chief of the Glass Blowing Section, Sinclair Research Laboratories, Harvey, Ill, is said to offer safe, practical solution for dispensing a large variety of solvents, acids, alkalies and liquid organic materials from large glass, rubber and metal containers. The density of the liquid is said to have no effect because the pump operates on the positive displacement principle. Heavier viscosity fluids are reportedly handled just as readily, although at a slower pumping rate.

Other advantages cited by the manufacturer, Laboratory Industries, Inc, 4710 West North Ave, Chicago 39, Ill:

(1) Prevents contamination, as the Carboypump is left in container until the container is empty. Since the only material coming in contact with the liquids is either Pyrex or Teflon, there is no possibility of contamination from the Carboypump.

(2) Eliminates the hazards always present when carboys are tipped or handled.

(3) Eliminates the hazards of discharged vapors or pressure sprays when air pressure is used to remove liquids from large containers.

(4) Eliminates purchasing of small unit bottles of corrosive liquids at premium prices.

(5) Pays for itself by savings realized through purchase of corrosive liquids in large volume containers.

The Carboypump is fabricated from heavy Pyrex tubing. Check valves are

Laboratory Industries' Carboypump

Pyrex and pumping ring is Teflon. A standard ball joint connects pouring spout to pump body and is held in place with standard ball joint clamp. The Teflon pumping ring is said to be readily replaced in case of wear.

Price complete, ready to install, is listed as $59.50.

TECHNICAL LITERATURE

CHEMISTRY—KEY TO BETTER LIVING

Edited and produced by the staffs of *Chemical Engineering News* and *Engineering Chemistry*

American Chemical Society
1155 Sixteenth St, N W
Washington 6, D C
xxi + 244 pages
1951. Price: $4.00

This volume is primarily a history of chemistry in America during the past 75 years and of the interrelation of the American Chemical Society and the American chemical industry as they have developed and progressed during that period.

A series of papers on chemical progress during the 75 years since the founding of the ACS reviews the development of chemical science and its industrial applications and discusses the part the ACS and its divisions played in the advancement of chemical knowledge and skill. This series was organized to subdivide chemistry roughly into the fields covered by the divisions of the ACS and the order of presentation follows aproximately the chronological order in which the divisions were established. These histories are all written by leaders in the fields covered.

A special feature of the book is "The First 75 Years" by Anthony Standen, author of "Science Is A Sacred Cow." It relates the significant developments of the first 75 years of the ACS and particularly the role the Society and its members played in the industrial chemical growth of the nation. A picture-caption story graphically presents the same period.

Making the Most of Stainless Steels in the Textile Industry

Crucible Steel Company of America
408 Lexington Avenue
New York 17, N Y
Available on request

This is a very comprehensive booklet, which cites the uses and advantages of stainless steel in all phases of the textile industry.

Its assistance in attaining greater profits and economy are outlined in the initial pages, after which its applications to finishing, dyeing, fabric preparation, weaving & knitting, yarn preparation and yarn manufacture are discussed. Additional sections are devoted to descriptions and illustrations of Crucible's production facilities and technical service and also to suggestions as to how to select proper types, how to save, and how to avoid abuse in routine cleaning.

Characteristics of Measuring Circuits Used in Brown ElectroniK Potentiometers (Bulletin B15-13)

and

Tel-O-Set and Miniature Strip Chart Recorder (#769)

Minneapolis-Honeywell Regulator Company
Brown Instruments Division
Station 40
Wayne and Windrim Aves
Philadelphia 44, Pa

Bulletin B15-13 discusses the characteristics of the measuring circuits used in the Brown ElectroniK Potentiometer. It is the second of a series for the benefit of those who wish to apply and utilize this instrument to unique or specialized measurements.

Specification sheet number 769 illustrates the Tel-O-Set and Miniature Strip Chart recorders, which are designed especially for graphic panel use, but can be employed wherever miniature recorders are desirable. In addition to descriptions of their method of operation, the sheet includes several views of the recorders as well as dimension and application drawings.

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ber 10, 1951

TROPIC MINT—hit of the Paris openings, choice of the Textile Color Card Association as an important spring green—is particularly smart with tone-on-tones, tortoise shell or rich spicy shades like *Benedictine.*

SANDOZ FORECASTS

Tropic Mint

a sun-kissed green for spring

To produce *Tropic Mint* exactly on woolens, Sandoz suggests a combination of probably the brightest *fast* blue on the market, the new Brilliant Alizarine Light Blue 3F Pat, and Xylene Light Yellow 2G. These dyestuffs are very level dyeing . . . completely compatible in the dye bath . . . have extreme light fastness when used in combination or separately.

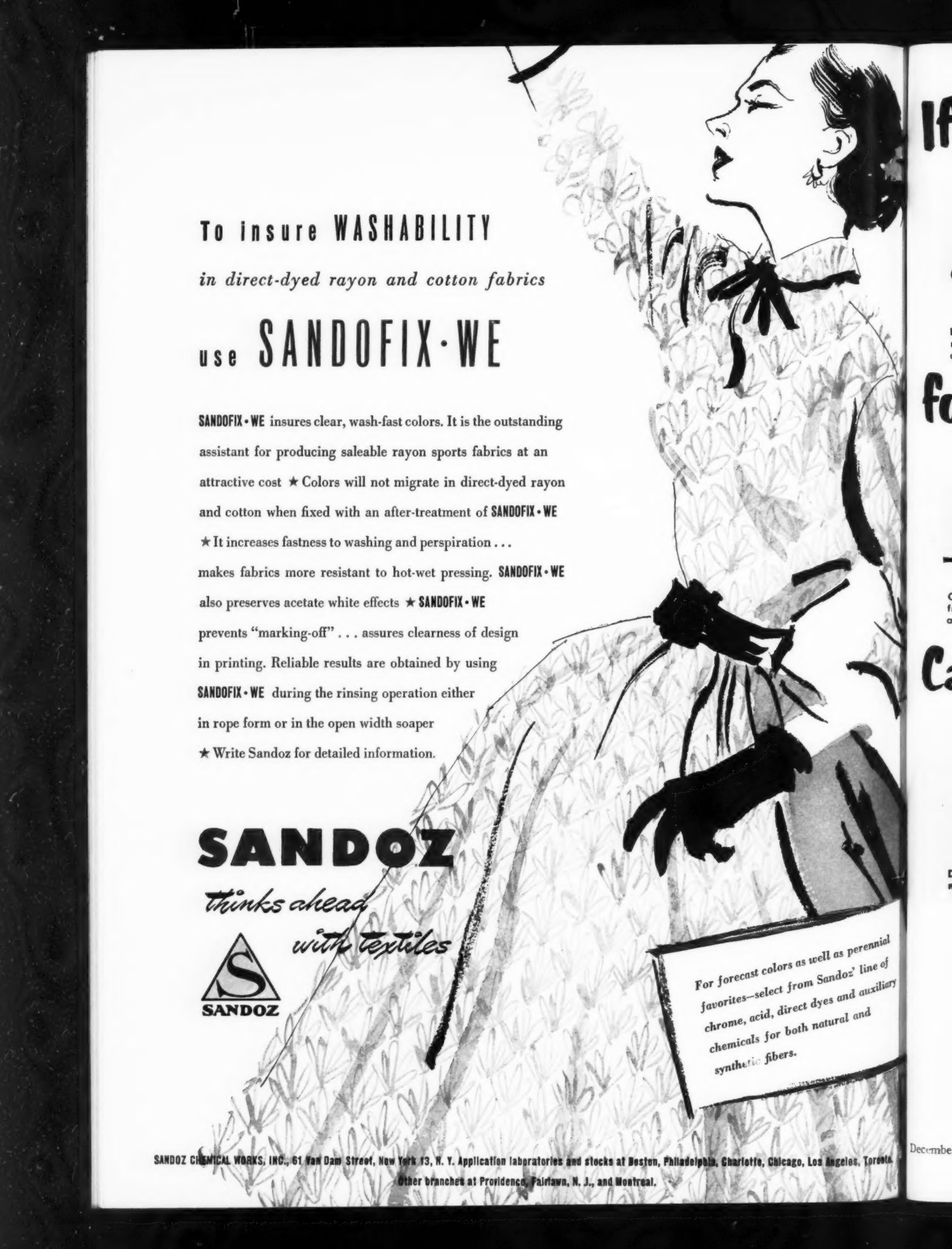
For spring rayons and cottons...

Probably the brightest *fast* blue on the market, the new Sandoz dye, BRILLIANT ALIZARINE LIGHT BLUE 3F PAT, is well adapted to dyeing baby blues and other clear, light shades on yarn or piece goods.

SANDOZ

thinks ahead with textiles

SANDOZ



To insure WASHABILITY

in direct-dyed rayon and cotton fabrics

use SANDOFIX·WE

SANDOFIX·WE insures clear, wash-fast colors. It is the outstanding assistant for producing saleable rayon sports fabrics at an attractive cost ★ Colors will not migrate in direct-dyed rayon and cotton when fixed with an after-treatment of **SANDOFIX·WE** ★ It increases fastness to washing and perspiration . . . makes fabrics more resistant to hot-wet pressing. **SANDOFIX·WE** also preserves acetate white effects ★ **SANDOFIX·WE** prevents "marking-off" . . . assures clearness of design in printing. Reliable results are obtained by using **SANDOFIX·WE** during the rinsing operation either in rope form or in the open width soaper ★ Write Sandoz for detailed information.

SANDOZ

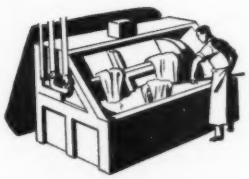
thinks ahead with textiles

SANDOZ

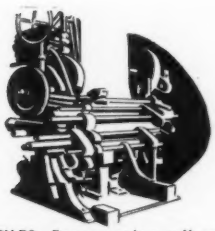
For forecast colors as well as perennial favorites—select from Sandoz' line of chrome, acid, direct dyes and auxiliary chemicals for both natural and synthetic fibers.

SANDOZ CHEMICAL WORKS, INC., 61 Van Dam Street, New York 13, N. Y. Application laboratories and stocks at Boston, Philadelphia, Charlotte, Chicago, Los Angeles, Toronto. Other branches at Providence, Fairlawn, N. J., and Montreal.

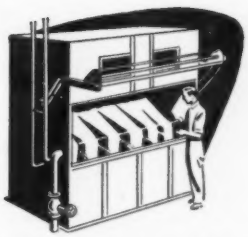
If you need OXALIC ACID



LEATHER & FURS—Vegetable tanning of sole and upper leathers; also bleaching of furs

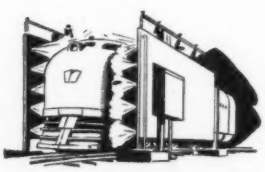


TEXTILES—For removing soil or smears after black aniline printing; in development of color when printing; for removing rust stains



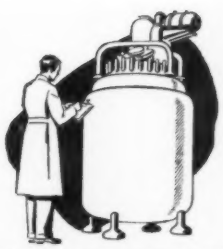
DYES—In manufacture of dyes

for these or other uses...



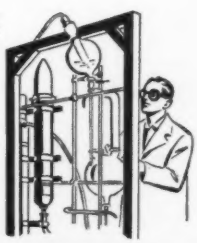
CLEANERS—For cleaning rust from railroad cars and buses; also as an auto radiator cleaner

PENTAERYTHRITOL — In manufacture of pentaerythritol, used in making surface coating resins and explosives

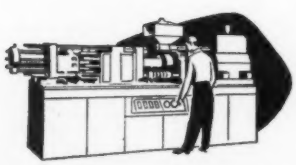


CHEMICALS—For manufacturing oxalates and other chemicals

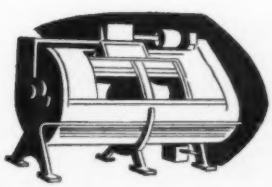
Call on GENERAL CHEMICAL



DRUGS—For manufacturing pharmaceuticals, antibiotics



PLASTICS—As a polymerization catalyst or decoloring agent



LAUNDRIES — For laundry sours and rust removers

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Wherever it is used, General Chemical Oxalic Acid is known for its purity and for the uniformity of its crystal size. It is readily available from the Company's coast-to-coast chain of distributing stations.

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...for fabrics
...for operators

The "Whirlwind's" basket is of stainless steel, perfectly smooth inside, with no rivets, flanges or other projections to snag or harm finest fabrics. Its high tensile strength permits highest speeds with absolute safety to machine and operator.

LARGE CAPACITY

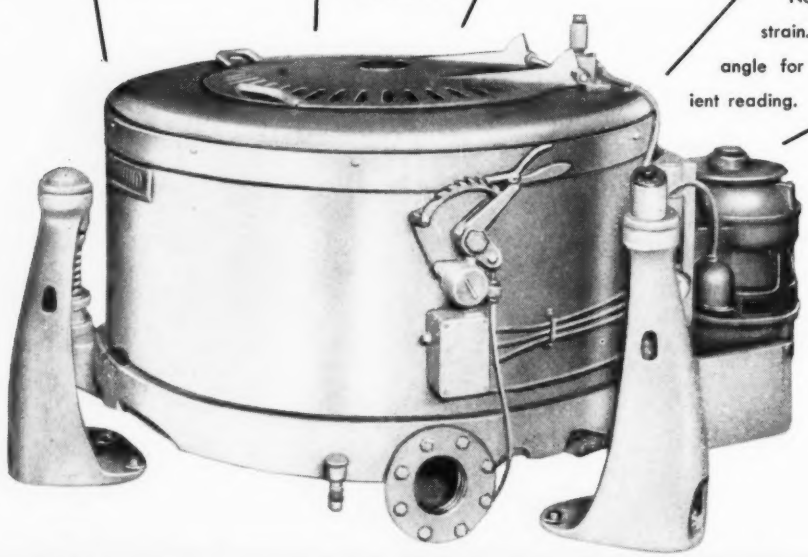
Fletcher basket design holds more. The 40" basket capacity is 14 cubic feet, while the 48" basket has a capacity of 21 cubic feet. More work is turned out in a "Whirlwind."

EASY TO LOAD AND UNLOAD

The "Whirlwind" is built so that operator has less "leaning over" to do and can load and unload basket rapidly with least effort because he can "get right on top of material." This results from casing and basket always being in fixed relation, with only space for good drainage required between the two.

FINGER-TIP CONTROL

Simply set the pointer and brake goes on and off automatically. No push—no pull—no strain. Dial is set at angle for convenient reading.



USES LESS FLOOR SPACE

The compact design saves valuable floor space and helps provide more efficient plant layout. For example, 48" size requires only 7' by 5'.

From cover to base, the Fletcher "Whirlwind" is built for top efficiency and long life. It has many other advantages in addition to those shown above. For complete details write for Bulletin 53.

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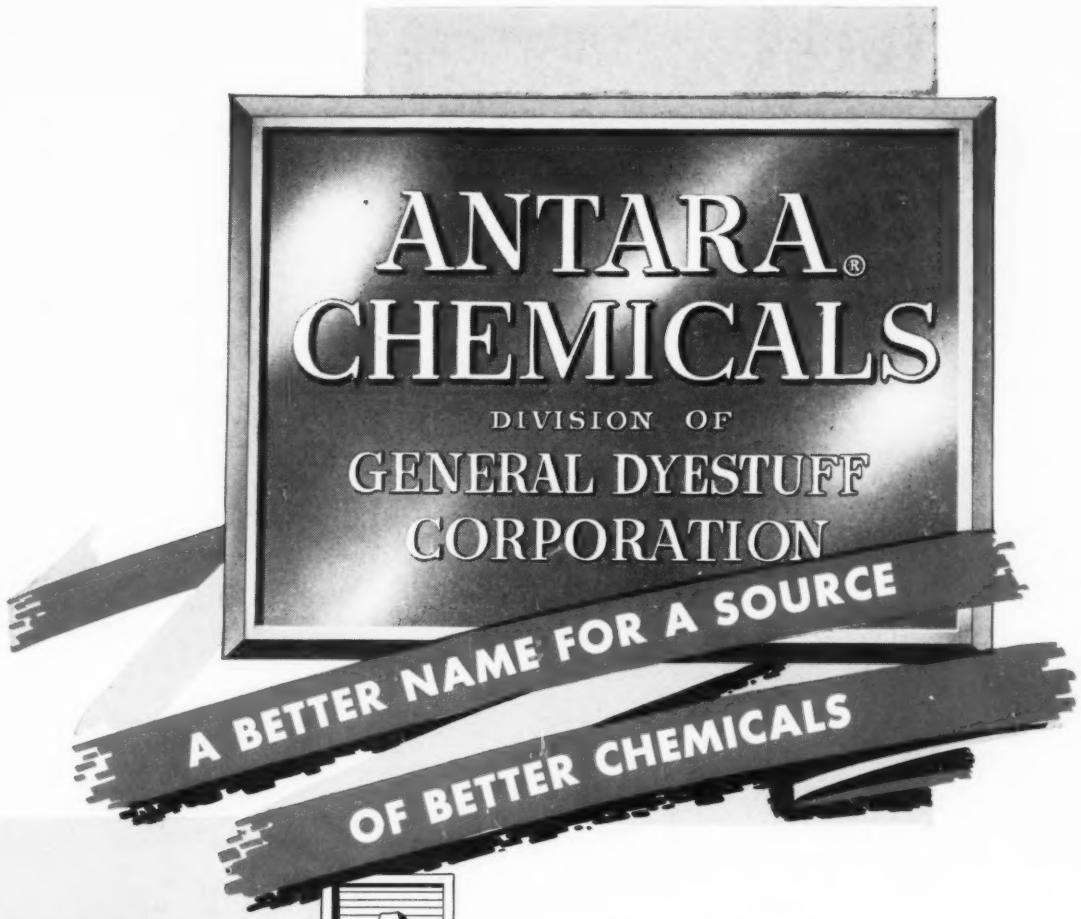

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SURFACTANTS —
anionic, nonionic, cationic — detergents, emulsifiers, dispersants, wetting agents, etc.

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ANTARA PRODUCTS, since October 1950 a division of General Dyestuff Corporation, this month changes its name to ANTARA CHEMICALS. The new name, it is believed, more accurately characterizes the general product line marketed by Antara—chemicals made by the General Aniline Works Division of General Aniline & Film Corporation for industry.

The change in name coincides with the inauguration of a multi-million dollar expansion program which will increase the research, production and service facilities of the division in the fields of surfactants, acetylene derivatives, intermediates and industrial chemicals.

For more complete information on any of the products in the broad categories listed at the left — or on the research, application and technical service facilities behind these products — please write on your company letterhead.

gdc ANTARA gaf

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DIVISION OF
GENERAL DYESTUFF CORPORATION
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3 Features designed for LOW COST DYEING

❶ This Dyebox is Fully Enclosed

— to keep heat and moisture where they belong, in the box; to save fuel, steam, water and dyestuffs; . . . to end dyehouse fog; to increase production per man hour; to give you better work.

❷ This Dyebox is Stainless Steel

. . . to clean in seconds with a quick rinse; . . . to eliminate boil outs; . . . to end discoloration of fabric; . . . to change from dark to light runs in a few seconds; . . . to give you more runs per day at lower cost.

❸ This Dyebox is Blickman Built

. . . to be as accessible as an open box with none of the disadvantages; . . . to give dyers every design feature for speedier loading, heating, lacing, unloading and changeover; . . . to assure trouble free operation for many years.

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"Avitone" improves seam efficiency by lubricating the individual fibers . . . thus minimizing the cutting or breaking of yarns during high-speed sewing operations. The needle slides easily between the lubricated fibers!

"Avitone" *softens* fabrics. They stay lovely longer . . . even during storage.

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Look into "Avitone" today. For further information, check with Fine Chemicals Division, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware. Branch Offices: Atlanta, Boston, Charlotte, Chicago, New York, Philadelphia, Providence, San Francisco.

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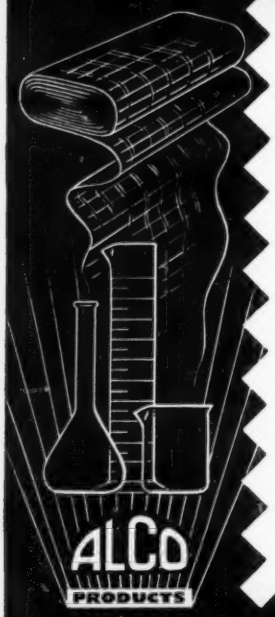

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FROM Bale TO Finished Product

Now, it's a case of better fabrics . . . faster. Standard's quality products and technical know-how can help you meet government standard specifications. Here's a list of Standard product uses from carding right on through to finishing.

For faster, better carding of cottons, rayons and synthetics, use Standapol and Stantex products.

For faster and better desizing, use Stantex Penetrator 40.

Improve your Sulphuric Acid Sour by using Stantex Penetrator 40.

Use Turpenol XXC in kier boiling, continuous boiling, and jig boiling to save time, improve quality and lower costs.

In Rodney Hunt slack soapers . . . use Pyrotex, a detergent that cleans in any kind of water at any temperature.

Mercerize with Mercetex 756 at any concentration up to 60° Twaddle for perfect lubrication and penetration. Mercetex 756 stores well in reclaimed Caustic and the wetting speed is just right.

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For dispersing, retarding and leveling light and dark shades on difficult government fabrics, use Retardine and Retardine D.

Clean up your dyed goods by using Pyrotex, Stantex NR-2, and Standapon. Excellent detergency, stability at boil, stability in acids or alkalis, and stability in soft or hard water. Easily rinsible. Economical to use.

Finishing and Sanforizing . . . Standapol 16 and Sanforol 50. They give the correct hand softness and have excellent sewing characteristics, and they will not injure the most delicate skin.

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APEX

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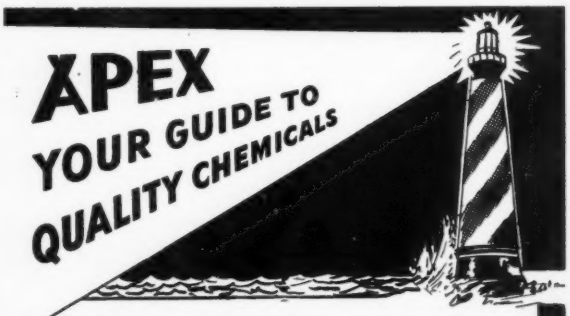

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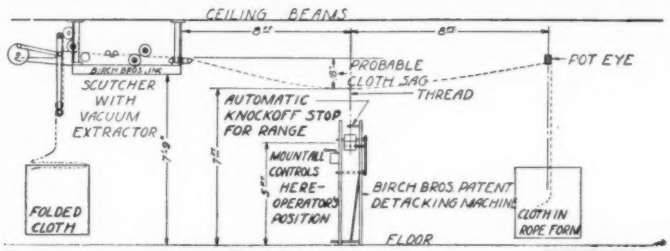
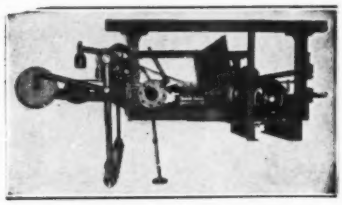
MACHINES FOR USE IN PROCESSING TRICOT, RAYONS AND OTHER FABRICS

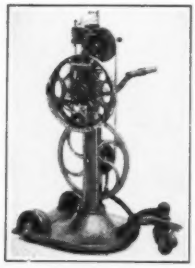


Range removes twist, pulls tacking thread, opens, extracts, folds or rolls in one continuous operation.



BALL BEARING CLOTH OPENING AND FOLDING MACHINE

For opening fabrics from the rope—Rayons, Blends, Tricot, Cottons, Woolens and pile fabrics. Drive by built-in motor.



"Coronation" Sewing Machine with Motor Drive sews fabrics wet or dry. Begins sewing at the very edge of the piece. Sews all types of fabrics.

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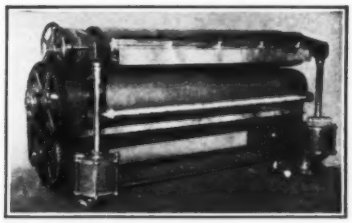

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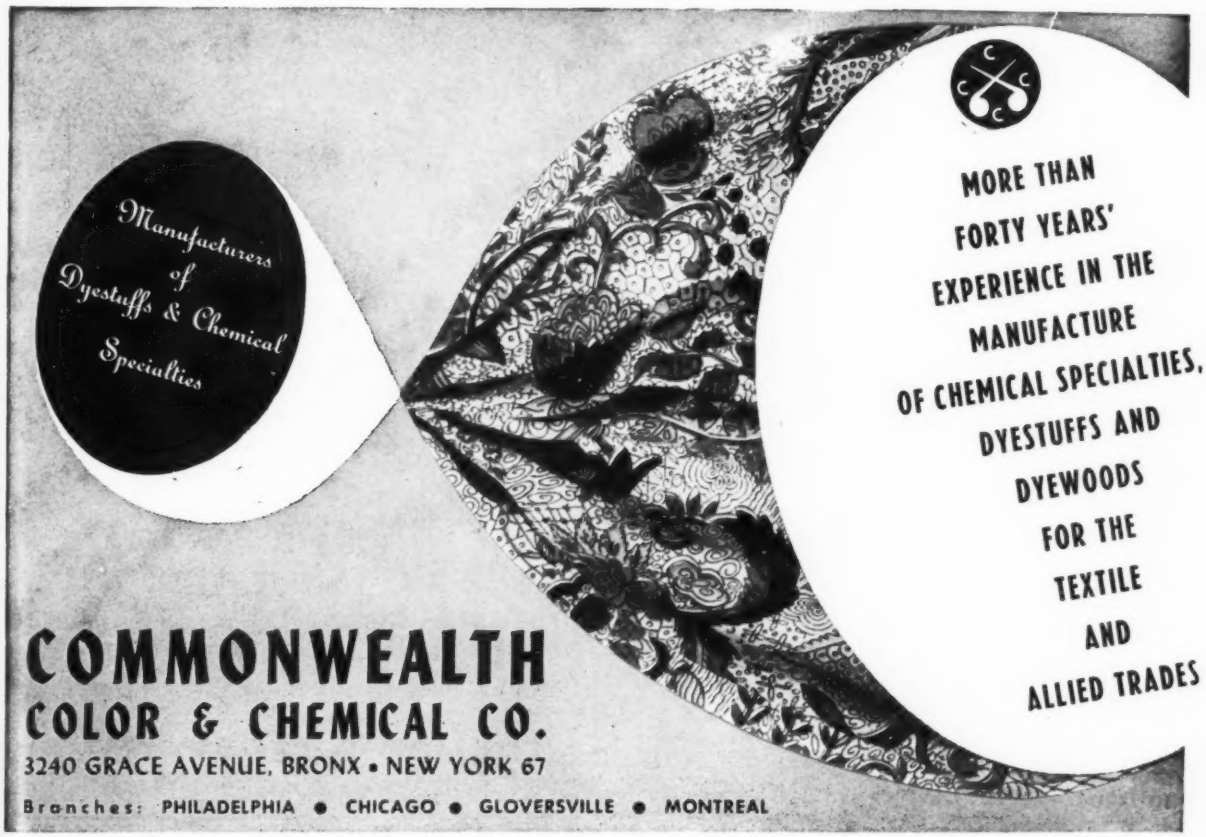
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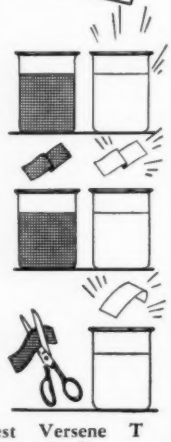
HOW TO PREVENT IRON STAINS . . .

Try this experiment!

Versene T*
BEAKER #1
(one liter) 500 cc of 5% caustic soda solution plus 5 cc of 0.1 Molar Ferric Chloride (27 gms. $FeCl_3 \cdot 6H_2O$ per 1000 cc water).
BEAKER #2
(one liter) Same contents as Beaker #1 but with 5 cc of Versene T added.

PROCEDURE BY STEPS

First, add the caustic to each beaker. Then, to Beaker #2, add 5cc of Versene T. Heat both beakers to boiling point and add the 5cc of the Ferric Chloride to each beaker. Note the difference between the solutions. Beaker #1 (containing no Versene T) is muddy with rust. Beaker #2 is water-white. Next, put a small strip of clean white cotton cloth in each beaker and boil a few minutes. Remove strips and rinse with water. Note the difference. Versene T has kept its strip white in spite of the iron that was added.



Last, take the other rust-stained strip, cut in half and place one-half in Beaker #2 containing the clear solution with the Versene T in it. Boil for a few minutes. Remove, rinse and compare. The Versene T has now restored the rust-stained cloth to its original whiteness.

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Fifteen seconds is all it takes to make an air permeability test with the GURLEY PERMEOMETER* on fabrics which permit a passage of from 1 to 400 cu. ft. of air/min/sq. ft. at a pressure drop of 0.5".

Wind-proofness, coating penetration, filler-retention and water-resistance are some of the many fabric properties accurately measured with this versatile instrument. Send for Bulletin 1600.

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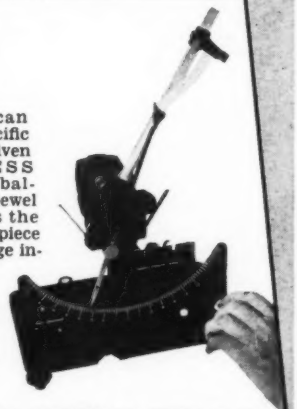

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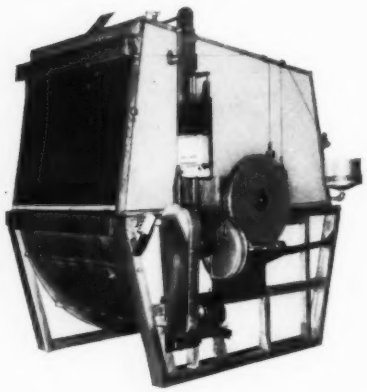

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WANTED: COTTON FINISHING CHEMIST. Experience in cotton and rayon dyeing and finishing essential. Position will require development and evaluation of dyeing assistants and fabric finishes in laboratory or surface active chemicals manufacturer along with technical service duties. Write Box No. 226.

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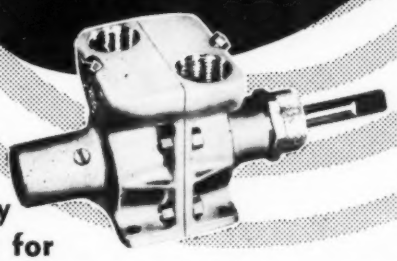

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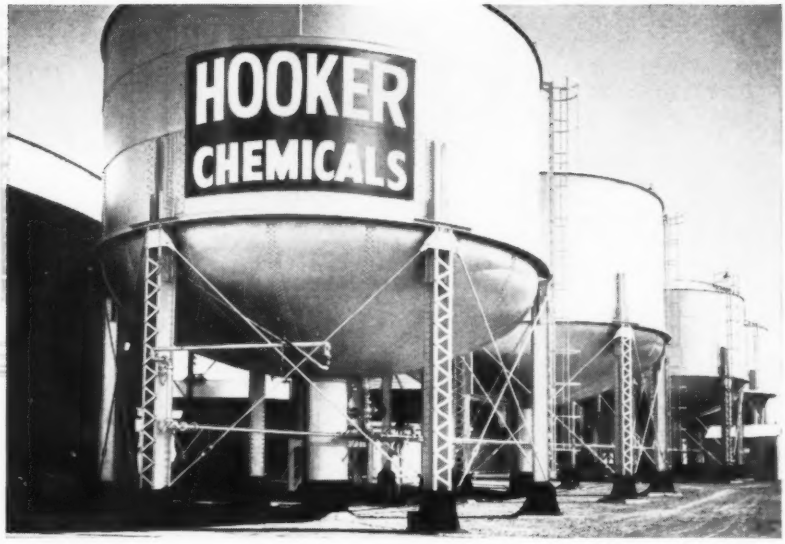

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Synthetic thickening agent — stable, non-yellowing, non-mildewing — Data Sheet P27

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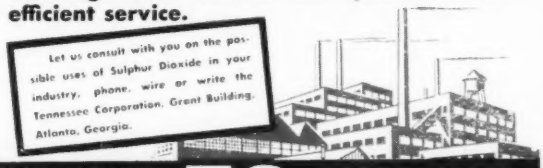
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ATLAS
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and FADE-OMETERS
. . . in the new
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Laboratory

. . . used for quality control, development and testing of products and processes

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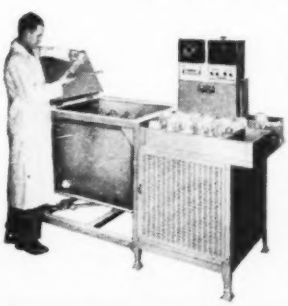
As part of the research program inaugurated by Riegel officials, these Atlas-Ometers help also to provide complete information on each new fabric while it is still in the developmental stage as well as to maintain the high standard of quality in daily production. In this manner, Riegel avoids costly trial and error methods still practiced in some textile plants today.

Technicians at this laboratory conduct washing tests of the A. A. T. C. C. in the Launder-Ometer to determine the fabric's resistance to shrinking, its color fastness, and resistance to washing and mechanical action. The Fade-Ometer is used to obtain factual data regarding the degree of fading registered on the sample by sunlight, temperature, and humidity. The Atlas cycle timer unit can be set to duplicate any test at any time.



New research model Launder-Ometers with capacities ranging from 20 pint jars to 6 half-gallon containers are now available as part of the complete line of standard Launder-Ometers.

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the one for you...

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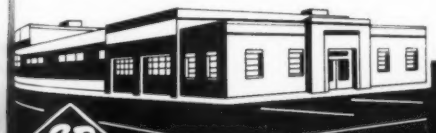

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